



JPW

IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

DOCKET PA1.615

In re Patent Application of

GROUP NUMBER 3732

JOHNSON, GARY E.

Serial No.: 09/204,866

Filed: 3 Dec. 1998

For: POWERED CUTTING
SURFACE WITH PROTECTIVE
GUARD FOR EQUINE TEETH
Group: 3732

Examiner: John J. Wilson
Examiner

I hereby certify that this correspondence
is being deposited with the United
States Postal Service as express
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ADDRESSED TO:

Commissioner of Patents

P.O. Box 1450

Alexandria Virginia

22313-1451

On

John E. Halamka
John E. Halamka

Dated: 13 March 2006

Palos Verdes Estates, California

PETITION TO REVIVE

**NO NOTICE OF ABANDONMENT OR NOTICE OF
IMPROPER OR INCOMPLET RESPONSE RECIEVED**

**ORAL SUGGESTION TO PETITION RECEIVED BY ATTORNEY OF
RECORD 1/11/2006**

Honorable Assistant Commissioner of Patents and Trademarks
Washington, D. C. 20231

Dear Honorable Assistant Commissioner of Patents and Trademarks:

Responsive to a telephone call received by John E. Halamka on
1/11/06 from the examiner, John Wilson, applicant by way of his
attorney submits this petition to revive the above identified application
having grantable claims after an extended struggle by applicant's
attorney to even determine the status of this application.

Upon finally determining an insight as to the status for this
application through the examiner on 1/11/06 the attorney of record,
John E. Halamka immediately set forth to review the file to find that
S O M E T H I N G M U S T B E A M I S S .

Mr. Halamka has attempted to reconstruct all of the activity on this application from the file and from his memory as well as from what has been previously reviewed from the records of the United States Patent and Trademark Office which includes a CD Rom copy of the file wrapper as of 07/14/04. He believes all that is set forth in this petition is true but may not be able to show by EXHIBITS to the satisfaction of your office the true facts because full access to the records in the United States Patent and Trademark Office for this application appears to be inaccessible or incomplete. Should you find the petition lacking support in a particular area, applicant's attorney respectfully requests prompt notification of the deficiency and an opportunity to cure the defect.

On 3/10/06, as has been the situation for many weeks, the public PAIR system **DOES NOT RECOGNIZE THAT PATENT APPLICATION SERIAL NUMBER 09204866 EXISTS. SEE EXHIBIT A.**

On 3/10/06, upon access through Private PAIR, the contents of serial number 09204866 can be displayed but the contents **DOES NOT SHOW THE DOCUMENT DATED 05-05-2005 "MAIL NOTICE OF INFORMAL OR NON-RESPONSIVE AMENDMENT" AS AVAILABLE FOR REVIEW. SEE EXHIBIT B.**

On 8/23/05 the MAILING of the Notice of Informal or Non-Responsive Amendment, dated 05-05-2005 WAS listed in the file history on 8-23-2005. **See Exhibit C.** However, viewing of that listed document on 8-23-2005 was not possible. A request for the private PAIR system to display, download or otherwise provide any information about the document could not be entered. This lack of access to the document caused me to call the examiner on 8-23-05 at (571)-272-4722, the number listed in the office action dated 02-24-05. I was connected to the voice mail of the examiner and left an urgent message to contact me at 310-541-8290 regarding serial no. 09/204,866 specifically identifying the issue as the notice of informal or non-responsive amendment listed as mailed on 05-05-05 but dated 04-25-05 that has not been received by this office nor is it available through private PAIR for review.

Applicant's attorney is absolutely frustrated in properly prosecuting this application by the inconsistency of the data base in the United States Patent and Trademark Office concerning Patent Application Serial No. 09/204,866 and prays for relief in the form of reinstatement of the application as active and notification of any deficiencies in the application. I apologize for the use of the bold and underline in this petition but it has added in decreasing the frustration. The markings are only to convey emphasis and not emotion.

This application has been pending since 3 December 1998. The first office action was not issued until 03-21-2001, more than 27 months after filing. A request for status dated 13 March 2001 was submitted by applicant's attorney, see Exhibit D, with copy of post card receipt as sent and another copy as received. EXHIBIT B, lists this document as a miscellaneous incoming letter with an associated date of 3/16/2001 and evidenced of receipt of the request is provided by the post card receipt returned to applicant's attorney, see Exhibit D. Applicant's attorney did not receive any reply to this request for status probably because the examiner had issued a non-final rejection on 03/21/2001 and may have considered that a proper response to the request for status.

The first office action in this matter, paper 3, dated 03-21-01, contains information that the application has "allowable" matter in claims 2, 3, 7, 8, 12 and 13 but are objected to as being dependent upon a rejected claim.

Efforts by applicant's attorney to place this application in a condition for allowance have been unsuccessful to date but this effort continues through this petition.

Accordingly, applicant's attorney has attached a complete resubmission of this application as assembled under the ePave software using the ABX format so that the application is electronically submitted, formatted and verified (COULD NOT BE VERIFIED YET - GETS TO PARAGRAPH 2 and finds an error - line numbering not in proper format- cannot correct or get past this so a printed copy is attached hereto until I can solve the problem.) in anticipation to speed the application into a condition for allowance.

Continuing with a short review of the history of this application - The Office action dated 06/12/02 found claims 2, 3, 7, 8, 12, 13 and 16-29 allowed.

Formal drawings were submitted 09/12/2002 with a response to the 06/12/02 office action.

The Office action dated 10/15/2002 found that the drawings were approved but "the claims were not amended" and there status remains the same for the Final Rejection. A period of 3 months was granted to file a proper reply which was calendared as January 15, 2003.

HOWEVER, the proper measure for a reply was 6 months from the office action dated 06/12/02. This lead to the notice of abandonment for failure to timely meet this deadline and the subsequent petition to revive which was granted on 12 November 2003.

Formal drawings were again submitted on 25 April 2005 in response to a request by the examiner dated 2/16/05 to submit the entire application, a clean copy of the specification, a copy of the specification with all changes noted and another set of drawings. Applicant's attorney speculates that the paper file for this application was misplaced in the move by the United States Patent and Trademark Office. No other changes to the specification were made to avoid any claim by the examiner that NEW MATTER HAD BEEN ENTERED. I believe this is why the claims were not identified as (original, modified, etc.)

It is to this submission that the notice of Non-Compliance (NO IDENTIFIERS ADDED TO THE CLAIMS) was issued by Ms. Annette Rivers (spelling) the legal instruments examiner having a phone number of 571-272-4387 by mere reference to the date of submission of a document without any identification as to the Serial No., applicant or other identification of applicant's attorney, when the notice was mailed or any helpful identifying information. After acquiring a copy of the notice by fax from the examiner, Ms. Annette was contacted by Applicant's Attorney to obtain the mailing page that usually accompanies the notice but Ms. Annette did not respond.

HOWEVER MY COPY OF THE SUBMISSION SHOWS EACH AND EVERY CLAIM HAS AN IDENTIFIER.

IT IS THIS NOTICE that was not received by Applicant's Attorney and applicant's attorney could not obtain a response from the United States Patent and Trademark Office to verify that the notice was even sent to Applicant's Attorney. Nothing in the **PRESENT** record (Exhibit B) shows that the notice was mailed. My printout dated 8/23/05 (Exhibit C) shows that the notice was "**mailed**" 05/05/05 but nothing in the record shows the address to where the notice was "MAILED". I finally received this notice on 8/25/05 by fax from the examiner, **ONE** day after the last day to respond to the notice of non-compliance.

The position I anticipate being able to establish to your office is that

1. According to a note in my file, I established my PRIVATE PAIR account on or about 8-17-2005 but I have not been able to find any confirmation of this date and it may have been as late as 8-23-2005;
2. After establishing the account, I attempted to check the status of all of my open patent applications;

3. For Serial No. 09/204,866 I found a listing of an informal or Non-Responsive Amendment dated 05-05-2005 as per listing shown in EXHIBIT C;
4. Looked through my file for the notice but could not locate it and concluded that I never received it. I looked through my calendar as it is my practice to make an entry for each and every item received from the United States Patent and Trademark Office. No entry related to the Gary Johnson application in my calendar that would correspond to receiving a notice of non-responsiveness on or after 05-05-2005 is present in my calendar;
5. I called the examiner at least as early as 8-23-05 to determine what was in the notice dated 05-05-05;
6. The examiner faxed a copy of the notice to me on 8-25-05, a day after the expiration of the time to reply to the notice;
7. The faxed copy contains a mailing date of 4-25-05 but the examiner only faxed the notice and did not include the mailing certificate. PLEASE NOTE THAT THE NOTICE DOES NOT CONTAIN ANY IDENTIFYING INFORMATION OTHER THAN THAT IT PERTAINS TO FILING DATED 4-25-05. NO APPLICANT NAME, SERIAL NUMBER OR OTHER DATA IS CONTAINED IN THE DOCUMENT THAT WOULD ALLOW THE ASSOCIATION OF THE NOTICE TO A PENDING FILE.

Notice mailed 5-5-05 re my amendment filed 4-25-05, faxed to me 8-25-05. One day after the expiration of 6 months to responded to on 2-24-05 quail.

8. I responded on 8-25-05 but the response was marked LATE in Private PAIR however no formal notice of non-entry or late response was issued;
9. I attempted to contact Annett Rivers (spelling) at 571-272-4387, the Legal Instruments Examiner that signed the notice of non-Compliant Amendment filed 4-25-05 to obtain a copy of the MAILING page for this notice but no response was made to my many calls; SEE EXHIBIT E
10. I contacted the examiner by fax on November 3, 2005 regarding the Notice, see EXHIBIT F, however in the request I mis-identified the notice as being dated 05-06-05;
11. I continued to attempt to determine the status of the application but could not obtain any response from the examiner or his supervisor until 1-11-06.
12. This action is taken as a result of the telephone call on 1-11-06 received from the examiner.

I determined the course of events to be:

- A. The response to the office action dated 02/24/05 NOT MADE FINAL (but containing a notice that prosecution is closed) was not entered.

The additional response submitted 8/25/05 was marked late on PAIR although this marking of late not available for review on PAIR until 8/31/05.

- B. A notice dated 4/25/05 that the response dated 02/24/05 was Non-Compliant response was posted on PAIR but not downloadable and available for review through PAIR until 8/31/05

THIS NOTICE dated 4/25/05 HAS **not been received by this office by mail only the second sheet was provided by fax on 8/24/05**. I have not been able to obtain the mailing cover sheet for this communication. PAIR did not contain and still does not contain the mailing sheet for this notice. The second sheet merely contains a statement that my communication mailed 4/24/05 was incomplete. **IT DID NOT STATE WHAT APPLICATION SERIAL NUMBER OR APPLICANT TO WHICH THIS NOTICE WAS DIRECTED.**

- C. On 8/17/06, I completed my enrollment into Private PAIR and immediately checked the status of all of my open applications. Upon checking the status of Serial No. 09/204,866 I observed that a NOTICE dated 4/25/05 had been issued. Upon examining the file, I determined that I had not received that notice. I attempted to review the notice through PAIR but could not download or view it. I called the examiner on or about 8/17/06 to inquire about the notice. The examiner was not available so I left a detailed message stating that I had observed that a notice dated 4/25/05 was generated but that I had not received the notice. Would he be so kind as to inform me about the content of the Notice.

The examiner faxed a copy of the Notice, but not the cover sheet, on 8/24/05, one day after the last day to respond to the Office Action dated. I filed a response that same day noting that I had just received the notice of non-compliant response. See Exhibit B. However, the filing was marked as a late filing on PAIR. I was never notified in any other way that the filing was late.

I had timely responded but not to the satisfaction of the Examiner. The examiner believed my response was not in the proper format.

A copy of the time line for this application is attached hereto as Exhibit G and Applicant's Attorney respectfully contends that he has incorporated the concepts in the time line which were imbedded during its construction to remind Applicant's Attorney of any point, argument or provision which should be considered in the Petition to Revive Inadvertently Abandoned Application. If Applicant's Attorney has not successfully incorporated a particular point from the time line, Applicant's Attorney prays that the Commissioner allow applicant's Attorney to amend the Petition with any information the Commissioner believes relevant or file a supplemental to this petition.

What I concluded from the time line exercise of reviewing all of the work in the file was that the USPTO did not properly mail the notice dated 4/25/05 so that I could timely correct any deficiency.

Thus, the application was not placed in a condition for allowance before the time to reply to the office action dated 2/24/05 and I then encountered great difficulty in obtaining any information about the status of the application in order to take any action.

I finally received the file wrapper on 10/10/04 and have completed this petition, a response to the final action in the form of a CONTINUATION IN PART to the examiner's conclusion that the amendments in response to paper 5 add new matter to the application.


Applicant's Attorney respectfully believes he completely and properly responded to the Examiner's FINAL office action by filing the CONTINUATION IN PART application. However, Applicant's Attorney is unsure of the proper procedure for filing the CIP as the underlying patent has become abandoned. Applicant's attorney respectfully requests that the CIP be filed pending the outcome of this petition to revive the underlying original U.S. Patent Application from which the CIP claims priority.

As this Petition to REVIVE an Inadvertently Abandoned patent application is filed within the two month statutory period FROM ACTUAL RECEIPT OF THE NOTICE OF ACTION REQUIRED, by oral notice, applicant's attorney believes that no additional fees are due for an extension as no extension beyond the two months is allowed. However, applicant's attorney authorizes any fees found to be due in addition to the Petition Fee believed to be in the sum of \$650.00 for a small entity to be charged to Deposit Account 08-0207.

If the Commissioner determines that a terminal disclaimer is required, Applicant's Attorney further authorizes the payment of any fee which is believed to be \$55 for a small entity for this terminal disclaimer to be charged to Deposit Account 08-0207.

If any other to file this petition is required, please charge to Applicant's attorney's deposit account Petition. If so, attorney authorizes the charge found to be charged to Deposit Account 08-0207.

Timely notice of reinstatement and passage on for allowance of this application is hereby respectfully requested.

Respectfully submitted,

John E. Halamka
Attorney of record

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Select Search Method: Enter Number:

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Applications viewed:		

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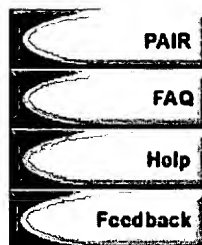
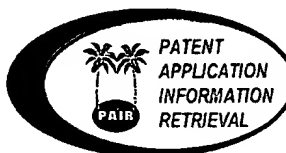
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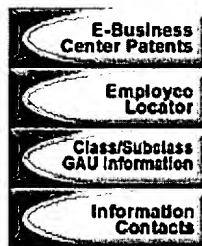


Image File Wrapper for Application No.:09/204,866

NET

This application is officially maintained in electronic form. To View: Click the desired Document Description, then click the desired document(s) and click Download.

Mail Room Date	Document Description	Document Category
11/03/2005	Miscellaneous Incoming Letter	PROSECUTION
09/09/2005	Applicant Arguments/Remarks Made in an Amendment	PROSECUTION
09/09/2005	Untimely (Late) Amendment Filed	PROSECUTION
09/09/2005	Abstract	PROSECUTION
09/09/2005	Claims	PROSECUTION
09/09/2005	Specification	PROSECUTION
08/25/2005	Supplemental Response or Supplemental Amendment	PROSECUTION
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04/25/2005	Fee Worksheet (PTO-875)	PROSECUTION
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EXHIBIT 8

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06/08/2004	Drawings	PROSECUTION
06/08/2004	Applicant Arguments/Remarks Made in an Amendment	PROSECUTION
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12/03/1998	<u>Issue Information including classification, examiner, name, claim, renumbering, etc.</u>	PROSECUTION
12/03/1998	<u>Fee Worksheet (PTO-875)</u>	PROSECUTION

12/03/1998	<u>Fee Worksheet (PTO-875)</u>	PROSECUTION
12/03/1998	<u>Oath or Declaration filed</u>	PROSECUTION
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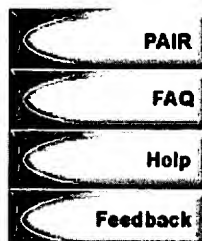
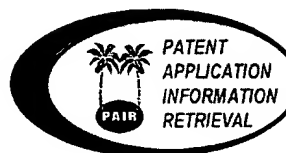
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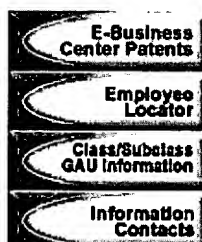
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Search results as of: 8-23-2005::19

Search results for application number:09/204,866			
Application Number:	09/204,866	Customer Number:	41953
Filing or 371(c) Date:	12-03-1998	Status:	Ex parte Quay Action Mailed
Application Type:	Utility	Status Date:	05-05-2005
Examiner Name:	WILSON, JOHN J	Location:	ELECTRONIC
Group Art Unit:	3732	Location Date:	-
Confirmation Number:	9456	Earliest Publication No:	-
Attorney Docket Number:	PA1.615	Earliest Publication Date:	-
Class/ Sub-Class:	433/001	Patent Number:	-
First Named Inventor:	GARY E. JOHNSON, TORRANCE, CA (US)	Issue Date of Patent:	-
Title Of Invention:	POWERED CUTTING SURFACE WITH PROTECTIVE GUARD F EQUINE TEETH		

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Publication Review

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File History	
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06-08-2004	Workflow incoming amendment IFW
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05-06-2004	Advisory Action (PTOL-303)
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EXHIBIT C

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01-24-2003	Abandonment for Failure to Respond to Office Action
12-23-2002	Untimely (Late) Amendment Filed
10-15-2002	Mail Advisory Action (PTOL - 303)
10-15-2002	Advisory Action (PTOL-303)
09-12-2002	New or Additional Drawing Filed
09-20-2002	Date Forwarded to Examiner
09-12-2002	Amendment after Final Rejection
06-12-2002	Mail Final Rejection (PTOL - 326)
06-12-2002	Final Rejection
04-26-2002	Date Forwarded to Examiner
04-17-2002	Response after Non-Final Action
03-26-2002	Mail Notice of Informal or Non-Responsive Amendment
01-29-2002	Date Forwarded to Examiner
11-01-2001	Informal or Non-Responsive Amendment after Examiner Action
11-01-2001	Response after Non-Final Action
10-09-2001	Mail Notice of Informal or Non-Responsive Amendment
09-24-2001	Informal or Non-Responsive Amendment after Examiner Action
09-24-2001	Request for Extension of Time - Granted
03-21-2001	Mail Non-Final Rejection
03-20-2001	Non-Final Rejection
02-01-1999	Applicant Has Filed a Verified Statement of Small Entity Status in C with 37 CFR 1.27
03-20-2001	Case Docketed to Examiner in GAU
12-30-1998	Application Dispatched from OIPE
12-22-1998	IFW Scan & PACR Auto Security Review
12-07-1998	Initial Exam Team nn

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IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

In re Patent Application of

GROUP NUMBER 3724

JOHNSON, GARY E.

Serial No.:09/204,866

Filed: 12 Dec. 1998

For: POWERED CUTTING
SURFACE WITH PROTECTIVE
GUARD FOR EQUINE TEETH
Group: 3724

Examiner:

I hereby certify that this correspondence
is being deposited with the United
States Postal Service as first
class mail in an envelope

ADDRESSED TO:

Assistant Commissioner of Patents
and Trademarks, Washington,
D.C. 20231

On 13 March 2001

John E. Halamka

Dated: 13 March 2001

Torrance, California

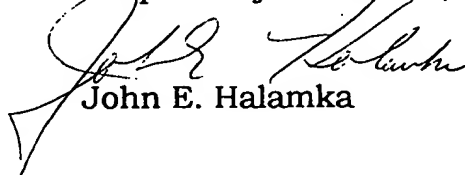
REQUEST FOR STATUS

Honorable Assistant Commissioner of Patents and Trademarks
Washington, D. C. 20231
Attn: Art Group 3724

Dear Assistant Commissioner:

Please find attached a copy of a filing receipt for the above
identified patent application. This office is attorney of record for the
applicant. As we have not had any correspondence after the receipt of
the filing receipt, we respectfully request notification of the status of the
examination of the application.

Respectfully submitted,



John E. Halamka

Receipt is hereby acknowledged for a REQUEST
for STATUS for Application Serial No. 09/204,866

Mailed, U.S. First Class 3/13/01
Client: Gary Johnson
Device: Equine Tooth Grinder

Receipt is hereby acknowledged for a REQUEST
for STATUS for Application Serial No. 09/204,866

Mailed, U.S. First Class 3/13/01
Client: Gary Johnson
Device: Equine Tooth Grinder





UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

Notice of Non-Compliant Amendment (37 CFR 1.121)

The amendment document filed on 4/25/05 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121. In order for the amendment document to be compliant, correction of the following item(s) is required. Only the corrected section of the non-compliant amendment document must be resubmitted (in its entirety), e.g., the entire "Amendments to the claims" section of applicant's amendment document must be re-submitted. 37 CFR 1.121(h).

THE FOLLOWING CHECKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
- ☐ A. Amended paragraph(s) do not include markings.
 - ☐ B. New paragraph(s) should not be underlined.
 - ☐ C. Other _____
- ☐ 2. Abstract:
- ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
 - ☐ B. Other _____
- ☐ 3. Amendments to the drawings: _____
- ☒ 4. Amendments to the claims:
- ☐ A. A complete listing of all of the claims is not present.
 - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
 - ☒ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following 7 status identifiers: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New) and (Not entered).
 - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
 - ☐ E. Other: _____

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP Sec. 714 and the USPTO website at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/officeflyer.pdf>.

If the non-compliant amendment is a **PRELIMINARY AMENDMENT**, applicant is given **ONE MONTH** from the mail date of this letter to supply the corrected section which complies with 37 CFR 1.121. Failure to comply with 37 CFR 1.121 will result in non-entry of the preliminary amendment and examination on the merits will commence without consideration of the proposed changes in the preliminary amendment(s). This notice is not an action under 35 U.S.C. 132, and this **ONE MONTH** time limit is not extendable.

If the non-compliant amendment is a reply to a **NON-FINAL OFFICE ACTION** (including a submission for an RCE), and since the amendment appears to be a *bona fide* attempt to be a reply (37 CFR 1.135(c)), applicant is given a **TIME PERIOD** of **ONE MONTH** from the mailing of this notice within which to re-submit the corrected section which complies with 37 CFR 1.121 in order to avoid abandonment. **EXTENSIONS OF THIS TIME PERIOD ARE AVAILABLE UNDER 37 CFR 1.136(a).**

If the amendment is a reply to a **FINAL REJECTION**, this form may be an attachment to an Advisory Action. The period for response to a final rejection continues to run from the date set in the final rejection, and is not affected by the non-compliant status of the amendment.

Legal Instruments Examiner (LIE)

571-272-4387
Telephone No.

Law Offices of John E. Halamka
P.O. Box 207, Palos Verdes Estates, CA 90274
310-316-6100 ← VOICE MAIL
Fax 310-541-8290 ← DIRECT FAX IS
halamka@usc.edu

RECEIVED
CENTRAL FAX CENTER

facsimile transmittal

NOV 03 2005

To: Examiner John J. Wilson or Kevin P. Shaver Fax: 703-872-9306

From: JOHN E. HALAMKA *John E. Halamka* Date: 3 November 2005

Re: U.S. PAT APP. # 09/204,866 Pages: THREE

☒ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Dear Sirs:

I am the attorney of record for Gary Johnson's application and have called the document examination, Annette Rivers, and Examiner Wilson attempting to determine why I still have not received the MAILING OF AN ADVISORY ACTION, dated 5-6-05. I was faxed the action by Examiner Wilson on 8/25/05 A DAY AFTER TIME RAN OUT TO RESPOND as a result of my phone inquiry 8/23/05 the first day I had access to PAIR and I noticed the entry of the ADVISORY ACTION on the PAIR system. The action is not part of the file wrapper so I cannot determine to what address the action was mailed on 5-7-05 to determine if I have a mail problem.

I have attached the printout of the PAIR FILE HISTORY showing ADVISORY ACTION and the printout of the Image file Wrapper showing NO ENTRY OF THE ADVISORY ACTION. Please advise. Thank you. John E. Halamka

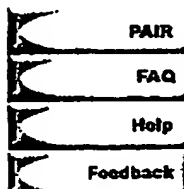
NOV 03 2005



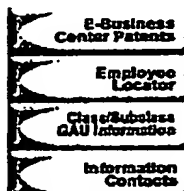
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PATENT APPLICATION INFORMATION RETRIEVAL



Other Links



Printer Friendly Version

Search results as of: 11-3-2005:22:

Search results for application number:09/204,866

Application Number:	09/204,866	Customer Number:	41953
Filing or 371(c) Date:	12-03-1998	Status:	Ex parte Quay Action Mailed
Application Type:	Utility	Status Date:	05-05-2005
Examiner Name:	WILSON, JOHN J	Location:	ELECTRONIC
Group Art Unit:	3732	Location Date:	-
Confirmation Number:	9456	Earliest Publication No:	-
Attorney Docket Number:	PA1.615	Earliest Publication Date:	-
Class/ Sub-Class:	433/001	Patent Number:	-
First Named Inventor:	GARY E. JOHNSON, TORRANCE, CA (US)	Issue Date of Patent:	-
Title Of Invention:	POWERED CUTTING SURFACE WITH PROTECTIVE GUARD F EQUINE TEETH		

Select Search Option

Image File Wrapper
Publication Review

Search

File History

Date	Contents Description
09-09-2005	Untimely (Late) Amendment Filed
08-16-2005	Correspondence Address Change
07-18-2005	Miscellaneous Incoming Letter
05-05-2005	Mail Notice of Informal or Non-Responsive Amendment
05-05-2005	Date Forwarded to Examiner
04-25-2005	Informal or Non-Responsive Amendment after Examiner Action
04-25-2005	Response after Ex Parte Quayle Action
02-24-2005	Mail Ex Parte Quayle Action (PTOL - 326)
02-22-2005	Ex Parte Quayle Action
09-14-2004	Miscellaneous Incoming Letter
07-19-2004	Date Forwarded to Examiner
06-08-2004	Supplemental Response
06-08-2004	Workflow incoming amendment IFW
05-07-2004	Mail Advisory Action (PTOL - 303)
05-06-2004	Advisory Action (PTOL-303)
04-27-2004	Date Forwarded to Examiner
04-12-2004	Supplemental Response



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PATENT APPLICATION INFORMATION RETRIEVAL



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E-Business Center Patents	
Employee Location	
Class/Subclass CAU Information	
Information Contacts	

Image File Wrapper for Application No.: 09/204,866 NE1		
This application is officially maintained in electronic form. To View: Click the desired Document Description. To Download: Click Download.		
Mail Room Date	Document Description	Document Category
09/09/2005	Claims	PROSECUTION
09/09/2005	Specification	PROSECUTION
09/09/2005	Applicant Arguments or Remarks Made in an Amendment	PROSECUTION
09/09/2005	Untimely (Late) Amendment Filed	PROSECUTION
09/09/2005	Abstract	PROSECUTION
08/25/2005	Supplemental Response or Supplemental Amendment	PROSECUTION
08/25/2005	Miscellaneous Incoming Letter	PROSECUTION
08/25/2005	Abstract	PROSECUTION
08/25/2005	Claims	PROSECUTION
08/25/2005	Specification	PROSECUTION
08/17/2005	Notice of Change of Address placed in File Wrapper due to EBC Customer Number update	PROSECUTION
07/18/2005	Miscellaneous Incoming Letter	PROSECUTION
04/25/2005	Fee Worksheet (PTO-875)	PROSECUTION
04/25/2005	Applicant Arguments or Remarks Made in an Amendment	PROSECUTION
04/25/2005	Abstract	PROSECUTION
04/25/2005	Claims	PROSECUTION
04/25/2005	Specification	PROSECUTION
04/25/2005	Drawings	PROSECUTION
04/25/2005	Drawings	PROSECUTION
04/25/2005	Amendment - After Non-Final Rejection	PROSECUTION
04/25/2005	Miscellaneous Action with SSP	PROSECUTION
02/24/2005	Ex Parte Quayle Action	PROSECUTION
09/14/2004	Miscellaneous Incoming Letter	PROSECUTION



9-12-05

043732
-8

IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

DOCKET PA1.615

In re Patent Application of

GROUP NUMBER 3732

JOHNSON, GARY E.

Serial No.: 09/204,866
Filed: 3 Dec. 1998

For: POWERED CUTTING
SURFACE WITH PROTECTIVE
GUARD FOR EQUINE TEETH
Group: 3732

Examiner: John J. Wilson
Examiner

I hereby certify that this correspondence
is being deposited with the United
States Postal Service as express
mail in an envelope

ADDRESSED TO:

Commissioner of Patents
P.O. Box 1450
Alexandria Virginia
22313-1451

On

John E. Halamka

Dated: ~~25 April 2005~~ 9 Sept 2005
Palos Verdes Estates, California

FURTHER RESPONSE TO
ACTION DATED 02/24/2005
NOTICE OF NON-COMPLIANCE AMENDMENT
RECEIVED 8/25/05

Honorable Assistant Commissioner of Patents and Trademarks
Washington, D. C. 20231
Attn: Mr. John J. Wilson, Primary Examiner

Dear Mr. Wilson:

I THANK YOU FOR YOUR FAX OF 8/25/05 IN RESPONSE TO MY
TELEPHONE CALL OF 8/24/05 INQUIRING ABOUT THE DOCUMENT
LISTED IN THE FILE BUT NOT IN THE FILE WRAPPER FOR THIS
APPLICATION.

I AM RESENDING THE SPECIFICATION clean AND marked up AS
PREVIOUSLY SUBMITTED AS WELL AS CLAIMS- EACH WITH AN
IDENTIFIER AS PREVIOUSLY SUBMITTED.

I HOPE I NOW UNDERSTAND THE PROBLEM. I
BELIEVE I COMPLIED WITH ALL REQUIREMENTS.

PLEASE CONTACT ME AT YOUR EARLIEST CONVENIENCE

19/15/2005 HAHMED1 00000017 080207 09204866

01 FC:2253

510.00 DA

Responsive to the Office Action dated 2/24/05, Applicant and his attorney wish to thank you for all of your efforts and the Notice of Allowable claims 2,3,7,8,12,13 and 16-29.

Enclosed a complete substitute of 31 pages of specification, claims and abstract. A complete copy of the application showing all of the changes underlined and all of the deletions in brackets EXCEPT those items originally in the specification enclosed in brackets which are identified. This submission of the entire application in CLEAN form as well as showing all changes was necessary to clarify the entire application and drawings for minor numbering and duplication issues noticed while prosecuting this application. No new matter has been added to the drawings or specification. It is requested that the substitute pages of specification and drawing be allowed to be entered into the file for issue of the allowed matter.


IN THE PRIOR SUBMISSIONS, applicants attorney failed to expand claim 2 to incorporate all of the limitations of claim 1. He also failed to expand claim 12 to incorporate all of the limitations of claim 11 which was limited by claim 4 which was further limited by claim 1. THIS OVERSIGHT IS NOW CORRECTED.

Kindly note that Figure 1E was expanded to conform to the original informal drawing submitted with the filing of the application. A copy of the informal drawing is attached for clarification to demonstrate that no new matter was added.

As this response is filed within the shortened two month statutory period, applicant's attorney believes that no additional fees are due. However, applicant's attorney authorizes any fees found to be due to be charged to Deposit Account 08-0207.

Timely notice of allowance of this application is hereby respectfully requested.

Respectfully submitted,


John E. Halamka
Attorney of record

Attached: Clean copy of claims with identifiers as substitute pages.
Marked up copy of claims with additions underlined.



IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

Docket No.: PA1615

Express Mail No.: EU232993881US

In re Patent of
JOHNSON, GARY

I hereby certify that this correspondence
is being deposited with the United States
Postal Service as EXPRESS Mail Service
to addressee service under 37 CFR 1.10,
postage paid, on the date indicated and
is addressed to:

Commissioner for Patents
P.O. Box 1450
Alexandria Virginia, 22313-1450
on 9 September 2005

FURNISH
For: RESPONSE TO OFFICE ACTION dated 02/25/2005

Notice of Non-Compliance

JOHN E. HALAMKA
P.O. Box 207, Palos Verdes Estates
310-316-6100

Dated: ~~24 April 2005~~ *9 Sept 2005*
Palos Verdes Estates, Los Angeles County
California



UNITED STATES POSTAL SERVICE EXPRESS MAIL FILING

Express No. EU 232993881 US

Identification no JEH 1615

The commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 08-0207. A duplicate copy of this sheet is enclosed.

☒ [XX] The fee for filing FURTHER RESPONSE TO THE SECOND NOTICE OF NON-COMPLIANT AMENDMENT in the 3 month as authorized by 37 CFR.

☒ [XX] Any additional fees under 37 CFR.

☒ [XX] Any processing fees under 37 CFR.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John E. Halamka".

John E. Halamka
Attorney of Record
P.O. Box 207.
Palos Verdes Estates, CA 90274
310 316-6100

Law Offices of John E. Halamka
P.O. Box 207, Palos Verdes Estates, CA 90274
310-316-6100 ← VOICE MAIL
Fax 310-541-8290 ← DIRECT FAX IN
halamka@usc.edu

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facsimile transmittal

NOV 03 2005

To: Examiner John J. Wilson or Kevin P. Shaver Fax: 703-872-9306

From: JOHN E. HALAMKA Date: 3 November 2005

Re: U.S. PAT APP. # 09/204,866 Pages: THREE

☒ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Dear Sirs:

I am the attorney of record for Gary Johnson's application and have called the document examination, Annette Rivers, and Examiner Wilson attempting to determine why I still have not received the MAILING OF AN ADVISORY ACTION, dated 5-6-05. I was faxed the action by Examiner Wilson on 8/25/05 A DAY AFTER TIME RAN OUT TO RESPOND as a result of my phone inquiry 8/23/05 the first day I had access to PAIR and I noticed the entry of the ADVISORY ACTION on the PAIR system. The action is not part of the file wrapper so I cannot determine to what address the action was mailed on 5-7-05 to determine if I have a mail problem.

I have attached the printout of the PAIR FILE HISTORY showing ADVISORY ACTION and the printout of the Image file Wrapper showing NO ENTRY OF THE ADVISORY ACTION. Please advise. Thank you. John E. Halamka

TIME LINE FOR GARY JOHNSON PATENT APPLICATION
02/24/05 EX PARTE QUAYLE FOR APPLICATION 09/204,866
EXAMINER JOHN J. WILSON ART UNIT 3732

RESPONSIVE TO COMMUNICATION FILED 8 JUNE 2004
REQUESTED FORMAL MATTERS CORRECTION
CLAIMS 2,3,7,8,12,13 AND 16-29 PENDING
CLAIMS 2,3,7,8,12,13, AND 16-29 ALLOWED

SPEC. NOT IN AGREEMENT WITH DRAWINGS.
SEPT.12, 2002 AMENDMENTS NOT ENTERED BECAUSE THEY DO NOT
COMPLY WITH RULE 1.121.
REQUIRED AN ENTIRELY REVIEWED SPEC. AND DRAWINGS TO BE
SUBMITTED.

9 SEPT 2005. SUBMITTED RESPONSE TO OFFICE ACTION DATED 02/24/05

RESPONSE CONSISTED OF 33 PAGES,
22 PAGES OF SPEC – MARKED UP COPY OF SUBSTITUTE PAGES
- CLEAN COPY OF SUBSTITUTUTE PAGES
10 PAGES OF CLAIMS – MARKED UP COPY OF SUBSTITUTE PAGES
- CLEAN COPY OF SUBSTITUTE PAGES
1 PAGE OF ABSTRACT – MARKED UP COPY OF SUBSTITUTE PAGE
- CLEAN COPY OF SUBSTITUTE PAGE

8/24/05 ??? COMPLETED MY PAIR ACCOUNT AND EXAMINED THE STATUS
OF MY FILES.

EVERYTHING LOOKED OK. ??

WHAT MADE ME CALL EXAMINER on 8/23/05???

EXAMINER FAXED NOTICE OF NON-COMPLIANCE AMENDMENT ON 8/25/05
A DAY AFTER THE RESPONSE WAS DUE. I RESPONDED THAT SAME DAY.

I NEVER RECEIVED THE NOTICE OF NON-COMPLIANCE DATED 4/25/05.
SENT BY ANNETTE RIVERS? 571-272-4387.
CALLED 10/31/05, LEFT MSG.
CALLED 11/1/05, LEFT MSG.
CALLED EXAMINER 11/2/05, LEFT MSG.

MSG. for ANNETTE asked her FOR PROOF OF MAILING AS I HAD NOT
RECEIVED THIS NOTICE. NO RESPONSE.

I WAS ABLE TO PRINT THE NOTICE ON 8/31/05 THROUGH PAIR. IT WAS
NOT AVAILABLE ON 8/24/05 WHEN I FIRST LOOKED AT THE STATUS OF
THIS APPLICATION. I HAVE NEVER BEEN ABLE TO CONFIRM ANY
PROOF OF MAILING TO MY ADDRESS.

Sent fax to examiner and supervisor on Nov. 3, 2005 asking for status and stating I did not receive the notice of con-compliance dated 5-6-05 and it was not available on pair as per print out.

NO RESPONSE

9 Sept 2005 Express mailed FURTHER RESPONSE TO 02/25/05 OFFICE.
ACTION NOTICE OF NON-COMPLIANCE dated 4/25/05

NOTE THAT THE NOTICE OF NON-COMPLIANCE HAS NO IDENTIFICATION AS TO WHAT FILE, WHAT APPLICATION, WHAT APPLICANT, NOTHING TO IDENTIFY HOW TO IDENTIFY WHAT FILE THIS NOTICE APPLIES TO. HOW WAS I TO DETERMINE THE APPROPRIATE ACTION??????
NO COVER SHEET FOR MAILING ACCOMPANIED THIS NOTICE.

1/11/06 left msg for examiner Wilson.
Return call confirmed I should petition to revive as the resubmission was late.

APPLICATION DATA SHEET

Electronic Version v14

Stylesheet Version v14.1

Applicant Information:

Inventor 1:

Applicant Authority Type:	Inventor
Name prefix:	Mr.
Given Name:	Gary
Middle Name:	E.
Family Name:	Johnson

Correspondence Information:

Customer Number:	041953	*041953*
------------------	--------	----------

Application Information:

Title of Invention: POWERED CUTTING SURFACE WITH PROTECTIVE
GUARD FOR EQUINE TEETH

Application Type: regular, utility

Attorney Docket Number: PA1.615

Botanic Information:

Publication Information:

Suggested Figure for Publication - Fig 1

Suggested Classification - 433/001

Suggested Technology Center - 3732

Total Number of Drawing Sheets - 11

Representative Information:

Domestic Priority Information:

Foreign Priority Information:

TRANSMITTAL

Electronic Version v1.1

Stylesheet Version v1.1.0

Title of Invention	POWERED CUTTING SURFACE WITH PROTECTIVE GUARD FOR EQUINE TEETH
-------------------------------	---

Application Number:

Date:

First Named Applicant: Mr. Gary E. Johnson

Confirmation Number:

Attorney Docket Number: PA1.615

We hereby certify that the use of this system is for OFFICIAL correspondence between patent applicants or their representatives and the USPTO. Fraudulent or other use besides the filing of official correspondence by authorized parties is strictly prohibited, and subject to a fine and/or imprisonment under applicable law.

We, the undersigned, certify that We have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document(s) We intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO.

POWER OF ATTORNEY OR AUTHORIZATION OF AGENT

Electronic Version v05

Stylesheet Version v05.0

Title of
Invention

POWERED CUTTING SURFACE WITH PROTECTIVE
GUARD FOR EQUINE TEETH

First Named Applicant: Mr. Gary E. Johnson

Attorney Docket Number: PA1.615

I hereby appoint the registered practitioner(s) at Customer Number:

41953

41953

as my attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

I am the Applicant/Inventor.

Full Name of Applicant of Record:

Mr. Gary E. Johnson

Signature: /s/

Date: 2006-03-13

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Electronic Version v11

Stylesheet Version v10

Title of Invention	POWERED CUTTING SURFACE WITH PROTECTIVE GUARD FOR EQUINE TEETH				
<p>As the below named inventor, I declare that:</p> <p>This declaration is directed to the invention titled: "POWERED CUTTING SURFACE WITH PROTECTIVE GUARD FOR EQUINE TEETH"</p> <p>I believe that I am the original and first inventor of the subject matter which is claimed and for which a patent is sought;</p> <p>I have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;</p> <p>I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.</p> <p>All statements made herein of my knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.</p>					
<p>FULL NAME OF INVENTOR:</p> <table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; padding: 5px;">Inventor: Mr. Gary E. Johnson</td><td style="width: 50%; padding: 5px;">Inventor</td></tr><tr><td style="padding: 5px;">Signature: /s/</td><td style="padding: 5px;">Citizen of: US</td></tr></table>		Inventor: Mr. Gary E. Johnson	Inventor	Signature: /s/	Citizen of: US
Inventor: Mr. Gary E. Johnson	Inventor				
Signature: /s/	Citizen of: US				

FEE TRANSMITTAL

Electronic Version v10
Stylesheet Version v10

**Title of
Invention**

**POWERED CUTTING SURFACE WITH PROTECTIVE GUARD FOR
EQUINE TEETH**

Application Number:

Date:

First Named Applicant: Mr. Gary E. Johnson

Attorney Docket Number: PA1.615

Art Unit: 3732

Examiner: Mr. John J. Wilson

TOTAL FEE AUTHORIZED \$75

Patent fees are subject to annual revisions on or about October 1st of each year.

Filing as small entity

BASIC FILING FEE

Fee Description	Fee Code	Amount \$	Fee Paid \$
Utility Filing Fee	4011	75	75
Subtotal For Basic Filing Fee: \$75			

EXTRA CLAIM FEES

Fee Description	Extra Claims	Fee Code	Amount \$	Fee Paid \$
Total Claims: 20	0	2202	25	0
Independent Claims: 3	0	2201	100	0
Subtotal For Extra Claims Fees: \$ 0				

ADDITIONAL FEES

Fee Description	Extra Pages Increment	Fee Code	Amount \$	Fee Paid \$
Extra pages fee	0	2081	125	0

Subtotal For Additional Fees: \$ 0

AUTHORIZED BILLING INFORMATION

The commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit account number: 080207

Access Code *****

Deposit name: John E. Halamka

Deposit authorized name: John E. Halamka

Signature: /s/

Date (YYYYMMDD): 2006-03-13

INVENTION TITLE

POWERED CUTTING SURFACE WITH PROTECTIVE GUARD FOR EQUINE TEETH

DESCRIPTION

[Para 1] This invention relates to the art of tooth maintenance for large animals and more particularly to a set of tools which may be used under powered motion for care and maintenance such as removing a selected portion of the exposed surface of teeth, such as equine teeth, with the powered hand being guided into the mouth of the horse. The powered tool is partially guarded so as to protect fleshy portions of the horse's mouth from being engaged by the powered tool. The tool may have a rotary cutting surface of a selected size and shape, sometimes commonly called a burr, or the tool may be a rotary cut-off disk. The selected tool, either the burr or cut-off disk, is supported and partially enclosed in a protective guard formed as a hand piece that may be guided into the mouth of a horse to perform care and maintenance on a selected portion of the teeth. The hand piece fabricated according to the teaching of this invention provides for quick on and off attachment of a selected cutting surface for maintenance of a preselected portion of teeth within the same hand piece or another hand piece sized to ease access to the next selected portion of the horse's mouth. The selected cutting surface is mounted within the protective guard/hand piece arrangement that may further incorporate a vacuum channel whereby the tooth dust and debris created by the powered cutting surface removing a portion of tooth is sucked out of the mouth of the horse. The motion of the tooth surface removal tool may be changed from rotary to powered reciprocating motion for a selected portion of the teeth. Attaching the powered drive to the rotary cutting surface by means of an adjustable clutch further enhances protection from injury to the inside of the mouth of the horse.

[Para 2] Throughout the life of the horse, the teeth continue to extend from the gums. When non-domesticated horses graze on the ground, they pick up sand and hard particles in the grass, which would naturally reduce the growth of the horse's teeth.

[Para 3] In order for domesticated horses to properly chew their food, which consists mostly of preprocessed grain and formula, the teeth require periodic maintenance. Without the natural wearing of the teeth from grazing on the ground, the teeth may grow uneven and too long, thus interfering with normal eating.

[Para 4] In the past, regular dental care to remove points, hooks or ridges that have grown or worn into the teeth required the use of a specially designed rasp-like tool to remove them, a process called floating the teeth. Because of the structure of the teeth, the horse does not have nerves extending upward in the teeth and therefore feels no pain when the teeth are filed to reshape them.

[Para 5] A grown horse uses 36 teeth to eat. The 6 upper incisors and the 6 lower incisors are for shearing grass and leaves, which are masticated by 12 premolars, and 12 molars located on both sides of the upper and lower jaws. These molars must align for the horse to chew properly.

[Para 6] The majority of dental problems are associated with the molars and premolars. However, if the incisors are too long, opposing molars and premolars may be prevented from engaging properly.

[Para 7] In the prior art, hand tools similar to metal files or rasps were used to remove a selected portion of the tooth surface. These tools consisted of several shaped handles with pads mounted on one end. The pads accepted plates having an abrasive or specially designed file or rasp-toothed surface selected by the user. The mounted abrasive or rasp on the handle was then inserted into the horse's mouth and positioned against the tooth structure that needed to be altered. The user then manually applied pressure and movement to the handle until the selected portion of the tooth structure was removed.

[Para 8] Some prior solutions to the problem were to add motor power to the burrs to provide a "power dental tool" to replace the manual rasps. These solutions ease the manual work but introduced other problems such as the uncontrolled creation of dust and debris as well as the danger of injury to the horse and user from exposed high speed reciprocating or rotary burrs or rasps which may engage soft tissue such as the cheek, tongue, or gums inside the horse's mouth.

[Para 9] Thus, there has long been a need for an arrangement that allows the user, usually a veterinarian, an owner or an equine dentist, to easily perform the removal of preselected material from the exposed surface of the horse's teeth without danger to the horse or the person doing the job.

[Para 10] It is desired that the arrangement allow the user to access the full array of teeth with a set of preselected shaped and surfaced files, rasps or other tools such as diamond cut-off blades.

[Para 11] It is further desired that the arrangement be motor driven but provide safety to the user and horse.

[Para 12] It is further desired to provide preselected shaped covers or guards around selected portions of the rotary tool to allow the system to be used in all parts of the mouth of the horse.

[Para 13] It is further desired to provide a clutch between the motor and the rotary tool. The threshold of disengagement of the rotary power applied by means of the clutch may be adjustable with access for adjustment that does not require dismantling the system.

[Para 14] It is further desired that the arrangement be able to remove accumulation of debris from the inside of the horse's mouth during the procedure.

[Para 15] It is desired that a simple latching or unlatching movement engage and disengage the selected tool within the rotary driven arrangement.

[Para 16] It is desired that a simple latching or unlatching movement engage and disengage selected guards around the rotary tool.

[Para 17] It is further desired that during the operation of the arrangement for the removal of material from inside the mouth the inadvertent engagement of soft tissue inside the mouth not adversely affect the user or the horse.

[Para 18] It is desired that reconfiguration of the arrangement be accomplished even if the users hands are slippery.

[Para 19] It is further desired that the motor be separated from the rotary tool by a drive train so that the user need not support the weight of the motor during the procedure.

[Para 20] It is further desired that the arrangement be easily adapted to a "power dental tool" motor or handle the user may presently own.

SUMMARY OF THE INVENTION

[Para 21] Accordingly, it is an object of the present invention to provide an arrangement that allows the user to safely and easily perform a dental procedure of removal of preselected material from the exposed surface of the teeth of horses.

[Para 22] It is another object of the present invention to provide an array of preselected size, shape and surfaced tools to be used to remove the tooth material as well as a means for quickly changing the rotary tool selected and provide a guard around a selected portion of the rotary tool so that it does not engage the flesh inside the mouth of the horse.

[Para 23] It is an object of the present invention to provide a clutch arrangement which allows the user to initially adjust the threshold at which the rotary motion will disengage should the rotary tool inadvertently entangle flesh inside the mouth of the horse. It is a further object that said threshold may be easily changed as the procedure progresses among various portions of the mouth without dismantling the system.

[Para 24] It is another object of the present invention to provide a method of removal of the tooth material debris from inside of mouth of the horse without stopping or interfering with the progress of the procedure.

[Para 25] It is yet another object of the present invention to provide an arrangement which does not require the user to support the motor during the procedure.

[Para 26] It is yet another object of the present invention to be easily mountable on or at least partially adapted to a "power dental tool" which may be currently owned by the user.

[Para 27] The above and other objects of the present invention are achieved, according to a preferred embodiment thereof, by providing a system of an improved power tool arrangement of a motor, power train, tools that remove tooth material, rotary tool hand pieces which support the tools for rotary motion or reciprocating motion and provide a guard to separate the tool from soft tissue. The arrangement is provided with means to easily reconfigure the tool, tool support and guard to adapt the system for powered removal of preselected portions of teeth.

MOTOR

[Para 28] The power for the preferred arrangement may be supplied from a preselected off the shelf rotary hand tool that may be obtained in various configurations of torque and adjustable rpm under the trademarks DREMEL or SUHNER. Each motor is designed to accept the shaft of a tool with an arrangement of a collet. The tool may have a selected cutting surface and a selected length of shaft. The rotary hand tool may be enhanced with a flexible shaft, one end adaptively mountable on the rotating shaft of the motor and the remote end attachable to an optional handle whereby under the condition of the rotary tool being mounted on the handle, the user may perform work by directing the rotary tool remote from the motor without having to support the weight of the motor. The motor may be supported within a backpack, fannypack or sling arrangement worn by the user.

POWER TRAIN

[Para 29] The flexible shaft that may be mounted between the motor and the tool removes the burden of holding the motor and physically separates the motor from the tool thereby

diminishing the level of sound of the arrangement that may be disturbing to the horse. One end of the flexible shaft may incorporate an adapter for quick push on connection with the selected motor, the end attachable to the hand piece may be fabricated with a stainless steel sleeve and shaped to incorporate a catch engagable with a latch mounted on the hand piece. The length of the flexible shaft may be selected to provide easy movement of the end of the shaft remote from the motor.

[Para 30] However, the flexible shaft arrangements provide direct coupling between the motor and the rotary tool. Should the tool engage a portion of the soft flesh inside the mouth of the horse or bind against the surface of the teeth, the rotational energy of this direct connection may cause damage to the horse before the tool can be removed or the power disconnected from the motor. In the present invention an adapter is provided between the motor and the flexible shaft. An adjustable clutch is mounted within the adapter to be accessible to the user to adjust the threshold of torque transmitted between the motor and the flexible shaft of the power train. Should the tool bind, as soon as the selected threshold is exceeded, the movement of the power train is interrupted so that the user may safely disengage the tool or clear the obstruction thereby providing protection to the horse and user of the arrangement.

TOOL

[Para 31] It is possible to obtain off the shelf tools to which rotary motion is applied. The tool is mountable in the motor and generally consists of a shaft and a working surface mounted on the end of the shaft. The shaft is nominally no longer than 1 to 2 1/2 inches. The working surface is provided in an array of shapes, sizes and surfaces. Some of the preferred shapes include a sphere, cone, cylinder, and combinations such as cylinder topped by a half sphere. These tools may be commonly called a burr. The cutting surface formed in the tool may be a preselected pattern of raised rasp like teeth of a preselected size and shape which removes tooth material without binding, bouncing or filling the rasp like teeth with debris.

[Para 32] Another type of rotary tool is the cut-off disk which is a platter about the size of a quarter covered with diamond dust and mounted on a shaft. This disk may be used edge on to cut off a selected portion of a tooth rather than grind off the portion with a burr. The edge of the disk may also be used to score the selected portion of tooth so that portion may be chipped off. The flat surface of the disk may be used as a polishing tool or may be used to round off any sharp edges like a disk sander.

[Para 33] If a tool having a working surface is mounted within a collet either on the end of the motor or on the end of the handle attached to the motor or end of a flexible drive shaft and the rotary tool has a shaft length of more than approximately 2 1/2 inches, the operation of this configuration of an extended cutting surface rotating at high speed and fully exposed, may be dangerous to the user and to the work piece, in this case the mouth of a horse. The mouth of a horse is deep and requires a tool of at least 12 inches in length to adequately reach the exposed surface of the back molars.

GUARD (Safety shield/hand piece) AND ROTORY TOOL SUPPORT (with vacuum channel)

[Para 34] A guard in the form of an encircling shield may be installed around the tool's shaft and cutting surface to separate the user and portions of the horse's mouth from the tool which is in rotary motion. The guard should be fabricated to have a minimal opening to allow only a selected portion of the cutting surface to be exposed. The hand piece, mountable on the end of the motor or flexible shaft, may be fabricated to incorporate the guard in a manner that allows the tool to be mounted within a channel of the hand piece thereby supporting the shaft and encircling the cutting surface. Support of the shaft is generally required if the shaft of the tool is longer than approximately 4 inches in order to reach into all areas of the mouth of the horse, pressing the cutting surface onto the surface of the tooth may move the shaft and or cutting surface against the safety shield or channel of the handpiece. Bearings may be mounted at preselected positions along the channel to support and protect the rotating shaft and cutting surface under conditions of engaging the channel or guard surfaces.

[Para 35] The hand piece may be supplied as a set of selected lengths specially adapted to service a selected portion of the horse's mouth. A 6 to 8 inch hand piece may be used to service the incisors. A 12 to 14 inch handpiece may be used for the back molars. An 8 to 12 hand piece may be supplied for intermediate service whereas a 10-inch hand piece is the recommended length for an all around arrangement.

[Para 36] The hand piece may include a second channel partially separate from the rotary tool channel. The hand piece may be fabricated to form an orifice near the cutting surface whereby the orifice is in communication with the second channel. The end of the second channel remote from the cutting surface is attachable to a vacuum source such as a "SHOP VAC" ® whereby tooth material removed by the cutting surface may be sucked out of the mouth of the horse along the second channel without having to remove the hand piece from the mouth of the horse.

[Para 37] The hand piece may also incorporate appropriate gearing and joints to transpose the rotary motion of the motor and apply a reciprocating motion to the tool mounted on hand piece. The reciprocating tool usually contains a textured surface to remove tooth material especially from the rear most molars which so abuts the gum of the horse that the use of a rotating tool even with a guard may cause injury to the gum.

[Para 38] In the preferred embodiment, the incorporation of an adjustable clutch within the power train, mounting of at least one support bearing within the handpiece, mounting the rotary tool with a guard and further providing for the mounting of shaped guard extensions on the surface of the guard provides a quick reconfiguration of the arrangement during the procedure that provides care and maintenance for the entire set of teeth.

[Para 39] An adapter may be provided to allow the user to use at least a portion of the arrangement such as the tool handpiece and guard system with a power dental device already owned by the user.

BRIEF DESCRIPTION OF THE DRAWINGS

[Para 40] The above and other embodiments of the present invention may be more fully understood from the following detailed description, taken together with the accompanying drawings, wherein similar reference characters refer to similar elements throughout, and in which:

Figure 1 A, B, C, D and E are front views of the present invention;

Figure 2 is a front view of a bearing support;

Figure 3 is a front view of another bearing support;

Figure 4 A, B, C, and D are views and a cross section of the present invention;

Figure 5 A, B, and C are views of another embodiment of the present invention;

Figure 6 B and F are views of another embodiment of the present invention,

Figure 6 H is a view of the hose;

Figure 7 B and F are views of a flange;

Figure 8 is a cross sectional view of the present invention;

Figure 9 is a cross sectional view of the present invention;

Figure 10 is a front view of the bearing support;

Figures 11 and 11F are a view of another embodiment of the present invention,

Figure 11 E is a view of the extended shaft;

Figure 12 X, Y and Z and A, B, C are views of another embodiment of the present invention;

Figure 13 is a view of an attachable handle;
Figure 14 is a view of another embodiment of the present invention;
Figure 15 is a detailed view of another embodiment of the present invention;
Figure 16 is a schematic of the power train; and,
Figure 17 is a view of the clutch arrangement.

DESCRIPTION OF A PREFERRED EMBODIMENT

[Para 41] Referring now to the drawing, there is illustrated in Figures 1A through 1E an embodiment of an arrangement fabricated according to the teaching of the present invention and generally designated 10. Figure 1A illustrates a rotary tool support generally designated 301 mountable within a hand piece generally designated 401. The hand piece 401 is fabricated to form a guard around a selected portion of the cutting surface 302. This embodiment is adapted to be attachable to a motor directly or by means of a flexible shaft and/or a handle that the user may own.

[Para 42] The rotary tool support 301 illustrated in Figure 1A is fabricated to support the shaft 303 of the rotary tool with a cutting surface 302 mounted on the shaft 303, even if a long shaft 303 (greater than 6 inches) is used.

[Para 43] Now referring to Figure 1C, the hand piece 401 fabricated according to the principals of the present invention incorporates the base 403 which may be fabricated to adapt the arrangement to a powered rotating source, such as a flexible shaft which is engagable with the shaft 303, or be mountable directly on the end of a powered rotating source already owned by the user. The end of the hand piece 401 remote from the powered rotating source is fabricated as a guard encircling a selected portion of the cutting surface 302 and may accept the mounting of an extended guard 406. The long shaft 303 of the rotary tool is required so that the arrangement may be used to reach even the rear most teeth within the mouth of the horse. The shape of the extended guard 406 may be selected to protect a particular portion of the horse's mouth and thus may form a set of removable attachable guards.

[Para 44] Now referring to Figure 1 A, there is illustrated a rotary tool support generally designated 301. The rotary tool mounted with the support 301 has a cutting surface 302 mounted on a shaft 303, this illustrated combination is commonly known as a burr. The shaft 303 extends along a bearing support sleeve 304. In the preferred embodiment, a bearing 305 is press fit into the end of the sleeve 304 nearest the cutting surface 302. An

upper shaft seal 306 is mounted above the bearing 305. A lower shaft seal 307 may be mounted on the end of the shaft 303 remote from the cutting surface 302 to protect the bearing 305 from contamination. Figure 1 B shows the rotary tool support 301 fully assembled.

[Para 45] Figure 1 C illustrates a hand piece generally designated 401. An outer shell fabricated of a capped tube 402 is mounted into an adaptive base 403 having a plurality of setscrews 405 depicted as an upper pair 405U and a lower pair 405L. The diameter of the tube 402 is selected to be a snug fit for the fully assembled rotary tool support 301 but allow the tool support 301 to be easily inserted into or removed from the tube 402. A selected upper portion of the tube 402 is removed down to the lower edge 404 to form an opening and expose a selected portion of the cutting surface 302. The remainder of the outer shell capped tube 402 forms a shield around the cutting surface 302. If more protection is desired an external guard 406 of preselected shape may be slid over the end of the tube 402 and secured in place with a set screw 405. The shape of the external guard 406 is selected so as to not come into contact with the cutting surface 302. Walls 407 form an opening in the external guard 406 to expose a preselected portion of the cutting surface 302.

[Para 46] Figure 1 D illustrates the rotary tool support 301 fully inserted into the hand piece 401 and secured lightly therein by the upper pair of setscrews 405U. The end of the shaft 303 remote from the cutting surface 302 is mounted into the collet 202. In this embodiment, the collet 202 is mounted on the end of a flexible shaft handle 203, which may be mounted to a motor. The adaptive base 403 is installed over the flexible shaft handle 203 and tightly secured in place by the lower pair of setscrews 405L followed by tightening the upper pair of set screws 405U. Figure 1 E shows the exposed portion of the cutting surface 302 surrounded by the hand piece 401 and external guard 406 fully assembled.

[Para 47] The external guard 406 may be fabricated with second wall 409 forming an intake orifice 410 at a preselected position near the cutting surface 302. A vacuum channel 408, which in the preferred embodiment is a hollow tube, may be mounted or fabricated within the external guard 406, positioned essentially parallel to the handpiece 401 and in communication with the orifice 410. As the channel 408 has one end making a connection with the intake orifice 401 formed by second wall 409, the channel 408 provides an open passage way for sucking out dust and debris created during use of the cutting surface 302

upon the condition of a vacuum source attached to the end of channel 408 remote from the intake orifice 410.

[Para 48] In Figure 2 there is illustrated another embodiment of the rotary tool support 301 fabricated as above with the addition of a lower bearing 308 mounted within the bearing support sleeve 304 above the lower shaft seal 307. However, when the shaft 303 in such a multiple bearing arrangement is mounted within the collet 202 of the flexible shaft handle 203, should the flexible shaft handle 203 also be fabricated with a multiple bearing arrangement, a misalignment of the bearings of the flexible shaft handle 203 and the bearings supporting shaft 303 may occur to cause excessive wear on one or more of the bearings or may cause the arrangement to bind and not be smoothly rotatable by the motor. This binding may be overcome by providing a means to adjust the alignment of the bearings.

[Para 49] If the lower bearing 308 and external seal 307 are removed to overcome any binding problem then another problem may develop. During use of the arrangement, the end of the bearing support sleeve 304 remote from the cutting surface 302 may come into contact with the collet 202 causing excessive wear to the point that the collet 202 cannot be loosened for the removal of the shaft 303.

[Para 50] Figure 3 illustrates a solution. The use of a lower bearing 308 and lower seal 307 can be eliminated and damage to the collet 202 be avoided by mounting a hollow brass tube 309 onto the shaft 303. Upon the mounting of the shaft 303 into the collet 202, the end of the brass tube 309 may be positioned to be spaced apart from the collet 202 or in contact with the collet 202. However the end of the sleeve 304 should not be in contact with the collet 202. The brass tube 309 extends from below the upper bearing 305 to a selected distance, 1/16 to 1/8 inch, below the end of the bearing support sleeve 304 remote from the upper bearing 305. Upon use of this arrangement, the brass tube 309 performs the function of a bearing by allowing the remote end of the sleeve 304 to come into contact with the brass tube 309 but the brass tube 309 keeps the sleeve 304 separate and apart from the rotating shaft 303.

[Para 51] Figure 4 illustrates a specialized handpiece 402 fabricated according to the teachings of this invention to incorporate a first channel for the support for the shaft 303 of the selected rotating tool, a guard partially encircling the tool mounted on the shaft and a second channel which may be attached to a vacuum source. This arrangement generally designated 401 and is fabricated to directly attach to a preferred motor by means of a

flexible shaft. The rotating tool illustrated as mounted in the handpiece 402 is a diamond cutoff disk 310 mounted on the end of shaft 303. In the preferred embodiment, the center of the disk is welded to the shaft rather than attached to a shaft by a screw or bolt. This arrangement creates a flat surface on the topside of the disk and is preferred for polishing, as it does not have any high points. The disk 310 may be used in this arrangement to slice off a portion of a tooth rather than grind off the portion with a cutting surface known as a burr. The partial cutaway view in Figure 4 B illustrates the end of the shaft 303 remote from the disk 310 to be removably insertable within the bearing support sleeve 304 through the bearing 305. The shaft 303 may be further protected by a hollow brass tube 309. A connector 311 attaches the end of the shaft 303 remote from the disk 310 to an adapter 312 which is adapted to slip directly into the end of a motor driven flexible shaft that compatible with the selected motor obtained under the trademark SUHNER. Another preselected shaped adapter 312 may be mounted to the connector 311 to facilitate easy connection to a flexible shaft compatible with the DREMME[®] motor. A latch 413 may be mounted on the handpiece 402 engagable with a catch formed on the end of the flexible shaft to hold the end of the flexible shaft within the hand piece 402. The illustrated hand piece 402 may be re-configured by replacing the cut-off disk 310 with a selected burr (cone, cylinder or ball) and used for care and maintenance, particularly in the front portions of the horse's mouth.

[Para 52] A flange 411 may be added to the hand piece 402 to provide room for a second channel that functions as a vacuum channel 408. This second channel is fabricated within the handpiece 402 and flange 411. An orifice 410 of a preselected shape may be fabricated in the handpiece 402 near the cutting surface of the rotating tool 310. The vacuum channel 408 is fabricated to have one end in communication with the orifice 410 and the other end adapted to be connected to a vacuum source. The vacuum channel 408 provides a hollow pathway starting from the orifice 410 for the removal of debris through the second channel upon connection to a vacuum source. Some segment of the second channel for the vacuum path and the first channel for the shaft within the shaft support may be in common before being bifurcated. Figure 4 D depicts how the flange 411 is held within the handpiece 402 with a snug fitting tongue and groove arrangement 412 and kept in place by a set screw 405. In the preferred embodiment the snug fit eliminates the need for a gasket to maintain sufficient vacuum differential to suck out dust and debris.

[Para 53] Figure 5 A, B and C depicts a hand piece generally designated 401 fabricated according to the teachings of this invention. The arrangement illustrated in Fig. 5 A, B and C is shaped and sized for maintenance of the incisor teeth of the horse. The exposed portion of the cutting surface 302 is minimized by fabricating the outer capped top 402 of the handpiece 401 to be close fitting and encircling a large portion of the cutting surface 302. This minimizes the opportunity for the fleshy parts of the horse's mouth to become entangled between the cutting surface 302 and the handpiece 401. The edges 414 of the hand piece 401 below the cutting surface 303 are shaped to provide a smooth slightly curved surface that slips smoothly over the teeth and allows the exposed cutting surface to be forcibly pressed against the selected area of the tooth with minimal, non-interfering contact of the hand piece 401 with the teeth.

[Para 54] The close fitting of the cutting surface to the handpiece 401 is achieved in the preferred embodiment by fabricating the base 415 of the handpiece 401 as illustrated in Figures 6 F and 6 B. In the preferred embodiment, the base 415 is machined of aluminum bar stock to form a rounded cap 416 on one end and access channel 417 open on the other end. Wall 407 is shaped to form an encircling guard around a portion of the cutting surface thereby exposing only a selected portion of the cutting surface near the rounded cap 416. Wall 407 extends away from the rounded cap 416 and toward the access channel 417 to form a first channel for the shaft 303 mounted within the shaft support sleeve 304 as illustrated in Fig 10. This shaft channel is bifurcated below the exposed cutting surface to communicate with a second channel 408, which is part of the vacuum path. Second wall 409 forms an orifice 410 near the cutting surface. A flange mount 418 is formed as shown in Fig. 6 B as a grooved opening wherein the flange 411 may be mounted. The flange 411 illustrated in Figures 7 F and 7 B is a support for a hollow tube 420 one end of the tube 420 communicating with the vacuum channel 408 and the other end extending beyond the flange 411 and attachable to a vacuum source. The edges 419 formed around the periphery of the flange 411 are shaped as a tongue surface engagable with the groove formed in the periphery of the flange mount 418 making a snug fitting tongue and groove arrangement 412, snug enough to prevent dissipation of the vacuum pressure so as to not decrease the suction of dust and debris from inside the mouth of the horse passing along the path from the orifice 410 through the vacuum channel 408 and hollow tube 420 to the vacuum source, a SHOP VAC ® with appropriate hoses 431 similar to that illustrated in Figure 6 H. The vacuum hoses 431 which joins the end of the hollow tube 420 to the

vacuum source may be tied to the powered flexible shaft so that as the user moves the hand piece, the line providing the rotational power and the line providing the vacuum source move with the hand piece as a unit.

[Para 55] A latch 413 may be mounted in the base 415 at a position to engage a catch mounted on the flexible shaft to secure the flexible shaft with the base 415.

[Para 56] Figure 8 is a cross section of the base 415 with flange 411 mounted therein by the tongue and groove 412.

[Para 57] Figure 9 is a cross section of the base 415 with flange 411 installed. A third wall forms a bearing support channel 421 starting near this position and extending in the direction of the rounded cap 416 until it intersects with wall 407.

[Para 58] Figure 10 illustrates a bearing support sleeve 304 with a bearing 305 and upper shaft seal 306 mounted within one end.

[Para 59] To assemble the arrangement, a selected tool comprised of a cutting surface 302 and shaft 303 is inserted through the base 415 starting at guard 407 and then into the bearing support channel 421. The bearing support sleeve 304 is then inserted into the bearing support channel 421 engaging the shaft 303 through the bearing 305 so that the shaft 303 extends beyond the end of the bearing support sleeve 304 remote from the bearing. The bearing support sleeve 304 is secured in place within the bearing support channel 421 by setscrews 405. Now referring to Figure 5 C, a connector 311 being first mounted to an adapter to a flexible shaft 312, is mounted on the extended end of the shaft 303. The adapter 312 being secured in place by a setscrew 405.

[Para 60] Figure 11F illustrates the base 415 of an extended arrangement sized for reaching the rear molars inside the horse's mouth and fabricated according to the teaching of the invention. In the preferred arrangement, the base 415 is 14 inches long. This additional length requires the shaft 303 attached to the cutting surface 302, the bearing support sleeve 304, flange 411, and hollow tube 420 illustrated in Fig. 11, to also be proportionally longer. These items may be extended as illustrated in Figure 11 E. A connector 311 attaches shaft extension 313 to the shaft 303 of the cone shaped cutting surface 302.

[Para 61] An additional setscrew 405 may be used to secure the longer bearing support sleeve 304. The orifice 410 formed by wall 409 at the front end of the vacuum channel 408 remains similar as it is sized in relationship to the cutting surface 302.

[Para 62] Figures 12 X, Y and Z illustrate the assembled extended arrangement having a base 415 approximately 14 inches long supporting a rotary tool having a cutting surface

302 and shaft 303 mounted within a bearing support sleeve 304. A connector 311 with adapter to flexible shaft 312 is mounted on the end of the shaft 303 remote from the cutting surface 302.

[Para 63] Because the back of the horse mouth is surrounded by fleshy material, the rounded cap 416 of the base 415 may provide inadequate separation between the cutting surface 302 and the fleshy material. An external guard 406 may be mounted on the base 415 to enhance the separation of the fleshy material from the cutting surface 302. Posts 422 are mounted near the cutting surface 302. Figures 12 A, B and C illustrate three shapes, left, right and balanced , respectively of a type of extended guard 406 which may be removably attached to the base 415 to provide extra separation between the fleshy material and the cutting surface 302. Each extended guard 406 is fabricated with walls 423 forming holes engagable with the posts 422. Wall 424 forms an opening to expose the cutting surface 302 and wall 425 forms an opening communicating with the orifice 410. Wall 426 forms a shallow channel in the base 415 into which the lower edge 427 of the extended guard 406 may be inserted. Wall 431 forms a retaining hole in each side of the base 415. A wedge arrangement 428 having an offset head 429 and a pin 430 is insertably removable by pin 430 into a selected retaining hole 431 whereby the wedge arrangement 428 is rotated by handle 432 to a position wedging the extended guard 406 securely into place by means of the offset head 429.

[Para 64] An attachable handle generally designated 501 is illustrated by Figure 13. This handle may be mounted on the remote end of the 14 inch base 415 like a pistol grip to provide a leveraged advantage especially for inserting and guiding the extended arrangement assembled to the rear molars for removing tooth material. This handle incorporates a clamp 502 removably mountable over the end of the base 415 to a position remote from the cap 416. Walls 503 form a threaded hole in the clamp 502 that accepts an extended screw 504 which upon being threaded into threaded hole 503 secures the handle 501 in place as well as preventing movement of clamp 502.

[Para 65] Other arrangements that are especially useful for the care of the rear molars is illustrated in Figure 15, the base 415 providing support for the shaft 303 within bearing support sleeve 304, all similar to the above embodiments but a set of gears 428 are mounted on the shaft 303 to change the profile of the shaft 303 by ninety degrees. This embodiment is particularly useful with the cut-off disk 310 mounted therein in a position which is essentially horizontal. The cut-off disk can be easily positioned to score a portion

of a tooth to be chipped off or used to polish and smooth selected teeth even in the rear portions of the horse's mouth.

[Para 66] The arrangement illustrated in Figure 14 is fabricated according to the above teaching but incorporates a set of gears 429 mounted within the base 415. The gears 429 are adapted to change the rotational motion of the shaft 303 to a reciprocating motion. In the preferred embodiment, the reciprocating motion is approximately 1/4 inch back and forth. A tool pad 453 is removably attachable to a reciprocating tool handle. The tool pad 453 has a flat cutting surface and is particularly useful for the care and maintenance of the rear most molars in the horse's mouth. The hand piece 415 may be pistol shaped to supply leverage and to provide adequate mounting for the set of gears 428 within the hand piece 415 at a point that is not inserted into the mouth of the horse.

[Para 67] The units in the preferred embodiment are fabricated of a preselected material such as aluminum, chosen to be lightweight, strong, easily machined and able to function in a wet environment. The surface of the aluminum may be anodized to protect the material from corrosion. A lightweight urethane material is preferred for the slip on extended guard 406 shown in Figure 1 C.

[Para 68] Figure 16 is a schematic representation of the power train generally designated 201. The basic configuration is a selected motor 101. The tools may be mounted directly onto the shaft of the motor 101 or separated from the motor 101 by a flexible shaft 204 as discussed above. Both configurations provide a direct connection between the motor 101 and the cutting surface 302 of the tool. In the preferred embodiment of the power train 201, an adjustable torque clutch 206 is included. Should the preselected torque of the clutch 206 be exceeded during use of the arrangement fabricated according to the teachings of this invention, the clutch 206 will disengage the powered motion of the motor 101 from the tool thereby minimizing possible injury to the horse or user and allow the user to safely clear any obstruction of the arrangement before continuing use.

[Para 69] Figure 17 illustrates a clutch 206 having a set of clutch plates 207, a torque adjustment knob 208 that sets the tension between the clutch plates 207. An end adapter 209 compatible with the flexible shaft 204 is mounted on the clutch 206 remote from the motor 101. The clutch 206 is mounted within the collet 202 of the motor 101.

[Para 70] A clutch housing 210 is fabricated to slip over the clutch 206 and onto the motor 101 to a position whereby the end adapter 209 is engagable by the end of the flexible shaft 204 which is mounted within the clutch housing 210. A sliding window 211 may be

mounted on the clutch housing 210 to allow easy access by the user to the torque adjustment knob 208.

[Para 71] Figure 16 illustrates a collar 212 fabricated from stainless steel and mounted on the flexible shaft 204 remote from the end of the flexible shaft mounted to the clutch housing 210. The collar 212 is fabricated with a catch 213 engagable by the latch 413 mounted on the base 415 of the hand piece 401 when the collar 212 is inserted within access channel 417. The rotational motion of the motor 101 is selectively, interruptably transmitted to the clutch 206, through the flexible shaft 204 engagable with the flexible shaft adapter 312 to the cutting surface 302.

[Para 72] Since certain change may be made in the above apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description, as shown in the accompanying drawing, shall be interpreted in an illustrative, and not a limiting sense.

What is claimed is:

[Claim 1] WHAT IS CLAIMED IS:

1. (Previously Presented) An arrangement of a tool insertable into the mouth of a horse for the care and maintenance of teeth while providing protection of soft tissue within the mouth of the horse and comprising in combination:
an electric rotary motor having a means to hold said tool along the axis of rotation of said motor, said tool having a tooth cutting surface of a preselected size and shape;
a shaft having one end mounted to said cutting surface and the other end attachable to said motor holding means thereby supplying rotational motion to said tool;
a shaft support means through which said shaft may be removably inserted, said shaft support means further comprises a bearing mounted at a preselected position within said shaft support means and a bearing seal mounted at a position between said bearing and said cutting surface through which said shaft may be inserted and supported for rotary motion without binding;
a hand piece having a channel through which said shaft support means is removably insertable; and,
a cutting surface guard fabricated as a portion of said hand piece and shaped to be in encircling relation about a selected portion of said cutting surface thereby exposing only a portion of said cutting surface under the condition of said shaft support means, having said shaft inserted therein, is mounted within said shaft support channel of said hand piece and said shaft engaged within said holding means thereby allowing a user of the arrangement to guide said hand piece containing the partially guarded tool into the mouth of the horse to separate said soft tissue from a preselected portion of a tooth with said cutting surface guard and position the unguarded portion of said cutting surface against a tooth to remove a selection portion of said tooth by means of said tool in rotary motion.
2. (Previously Presented) The arrangement defined in claim 1 further comprising a brass sleeve mountable around said shaft under the condition of said shaft being inserted through said bearing and bearing seal into said shaft support means, said brass sleeve providing separation between said shaft and said shaft support means.

3. (Previously Presented) The arrangement in claim 1 wherein said shaft support means further comprises gearing means mounted within said shaft support means and in communication with said shaft to change the rotational motion of said shaft attached to said motor holding means into reciprocating motion which may be applied to said cutting surface mounted on said shaft remote from said gearing means.
4. (Previously Presented) The arrangement in claim 1 wherein said shaft support means further comprises gearing means mounted within said shaft support means and in communication with said shaft to change the profile of the shaft by a preselected angle thereby increasing the range of placement of said cutting surface of said tool.
5. (Previously Presented) An arrangement of a tool insertable into a mouth of a horse for the care and maintenance of teeth while providing protection of soft tissue within the mouth of the horse and comprising in combination:
- an electric motor having a means to hold said tool along the axis of rotation of said motor, said tool cutting surface of a preselected size and shape;
 - a shaft having a first end mounted to said cutting surface and the other end attachable to said motor holding means thereby supplying rotational motion to said tool;
 - a shaft support means through which said shaft may be removably inserted, said shaft support means further comprises a bearing mounted at a preselected position within said shaft support means and a bearing seal mounted at a position between said bearing and said cutting surface through which said shaft may be inserted and supported for rotary motion without binding;
 - a hand piece having a channel through which said shaft support means is removably insertable;
 - a cutting surface guard fabricated as a portion of said hand piece and shaped to be in encircling relation about a selected portion of said cutting surface thereby exposing only a portion of said cutting surface under the condition of said shaft support means, having said shaft inserted therein, is mounted within said shaft support channel of said hand piece and said shaft engaged within said holding means thereby allowing a user of the arrangement to guide said hand piece containing the partially guarded tool into the mouth of the horse to separate said soft tissue from a preselected portion of a tooth with said cutting surface guard and position the unguarded portion of said cutting

surface against a tooth to remove a selection portion of said tooth by means of said tool in rotary motion;

a flexible shaft having one end adaptively mountable to said motor thereby supplying rotational motion to said flexible shaft and the other end having a means to hold said tool along the axis of rotation of the flexible shaft thereby separating said motor from said tool so that said motor may be supported at a position remote from said tool; and, a clutch mounted with one end in communication with said motor and another end remote from said motor in communication with said flexible shaft thereby providing interruptible transmission of motion from said motor to said cutting surface in communication with said flexible shaft, wherein said clutch further comprises means to adjust the threshold of torque at which said motion is interrupted.

6. (Previously Presented) The arrangement in claim 5 further comprising a clutch housing mountable to said motor thereby enclosing said clutch and having a mounting to retain one end of said flexible shaft in communication with said clutch, said clutch housing having a means for access by the user to the means to adjust the torque.

7. (Previously Presented) An electric motor powered arrangement insertable into the mouth of a horse for the care and maintenance of equine teeth while providing protection of soft tissue within the mouth of the horse and comprising in combination:

a tool having a tooth material removal surface;

a shaft having a first end mounted to said tool and a second end attachable to said electric motor whereby said tooth material removal surface has a powered motion;

a hand piece fabricated with an internal shaft channel;

a bearing support sleeve;

at least one bearing mounted within said support sleeve at a preselected position whereby said bearing accepts the insertion of said shaft through said bearing thereby exposing the end of said shaft remote from said tooth removal surface, said bearing support sleeve mounted with said internal shaft channel whereby said exposed end of said shaft is attachable to said electric motor, said bearing providing support for said shaft under the condition of said tooth material removal surface tool being guided into contact with a preselected tooth and pressed against the tooth until a preselected portion of the tooth is removed while said tooth material removal surface is under powered motion;

a protective shield fabricated as part of said hand piece at a preselected position and shaped to expose a preselected portion of said tooth material removal surface of said

tool retained within said hand piece, said exposed portion guided into contact with a preselected portion of the tooth whereby the remaining non-exposed surface is separated from other portions of the horses mouth including said soft tissue; and, a sleeve mountable over said shaft within said shaft hand piece whereby said sleeve provides additional bearing means between said shaft and said hand piece without binding.

8. (Previously Presented) The arrangement defined in claim 7 wherein said bearing support sleeve means further comprises a bearing mounted at a preselected position within said bearing support sleeve and a bearing seal mounted at a position between said bearing and said cutting surface through which said shaft may be inserted and supported for rotary motion without binding.
9. (Previously Presented) The arrangement defined in claim 7 further comprising a flexible shaft having one end adaptively mountable to said motor thereby supplying rotational motion to said flexible shaft and the other end having a means to hold said tool along the axis of rotation of the flexible shaft thereby separating said motor from said tool so that said motor may be supported at a position remote from said tool.
10. The arrangement defined in claim 7 further comprising preselected sized and shaped extended guards mountable to said cutting surface guard to provide additional separation between said cutting surface and said soft tissue within the mouth of the horse.
11. The arrangement defined in claim 15 wherein said extended guard further comprises an orifice formed near said cutting surface and a vacuum channel one end of which is in communication with said orifice, the other end of said vacuum channel adapted to be removably attachable to a vacuum source whereby the dust and debris created by the removal of a selected portion of a tooth may first enter said orifice and then said channel to be sucked out of the mouth of the horse and deposited into said vacuum source.
12. The arrangement in claim 7 wherein said bearing support sleeve further comprises gearing means mounted within said bearing support sleeve and in communication with said shaft to change the rotational motion of said shaft attached to said motor holding means into reciprocating motion which may be applied to said cutting surface mounted on said shaft remote from said gearing means.

13. The arrangement in claim 7 wherein said bearing support sleeve further comprises gearing means mounted within said bearing support sleeve and in communication with said shaft to change the profile of the shaft by a preselected angle thereby increasing the range of placement of said cutting surface of said tool.
14. The arrangement in claim 9 wherein said adaptive mounting of said flexible shaft is to a motor owned by the user.
15. The arrangement in claim 9 wherein said means to hold said tool is a handle owned by the user, said flexible shaft having means to adaptively mount said handle on the end of said flexible shaft under the condition of said shaft mounted within said handle.
16. The arrangement in claim 9 further comprising a clutch mounted with one end in communication with said motor and another end remote from said motor in communication with said flexible shaft thereby providing interruptible transmission of motion from said motor to said cutting surface in communication with said flexible shaft.
17. The arrangement in claim 12 wherein said clutch further comprises means to adjust the threshold of torque at which said motion is interrupted.
18. The arrangement in claim 13 further comprising a clutch housing mountable to said motor thereby enclosing said clutch and having a mounting to retain one end of said flexible shaft in communication with said clutch, said clutch housing having a means for access by the user to the means to adjust the torque.
19. The arrangement in claim 7 wherein said hand piece and guard are fabricated from aluminum.
20. The arrangement in claim 19 wherein the exposed surfaces of said aluminum are anodized.

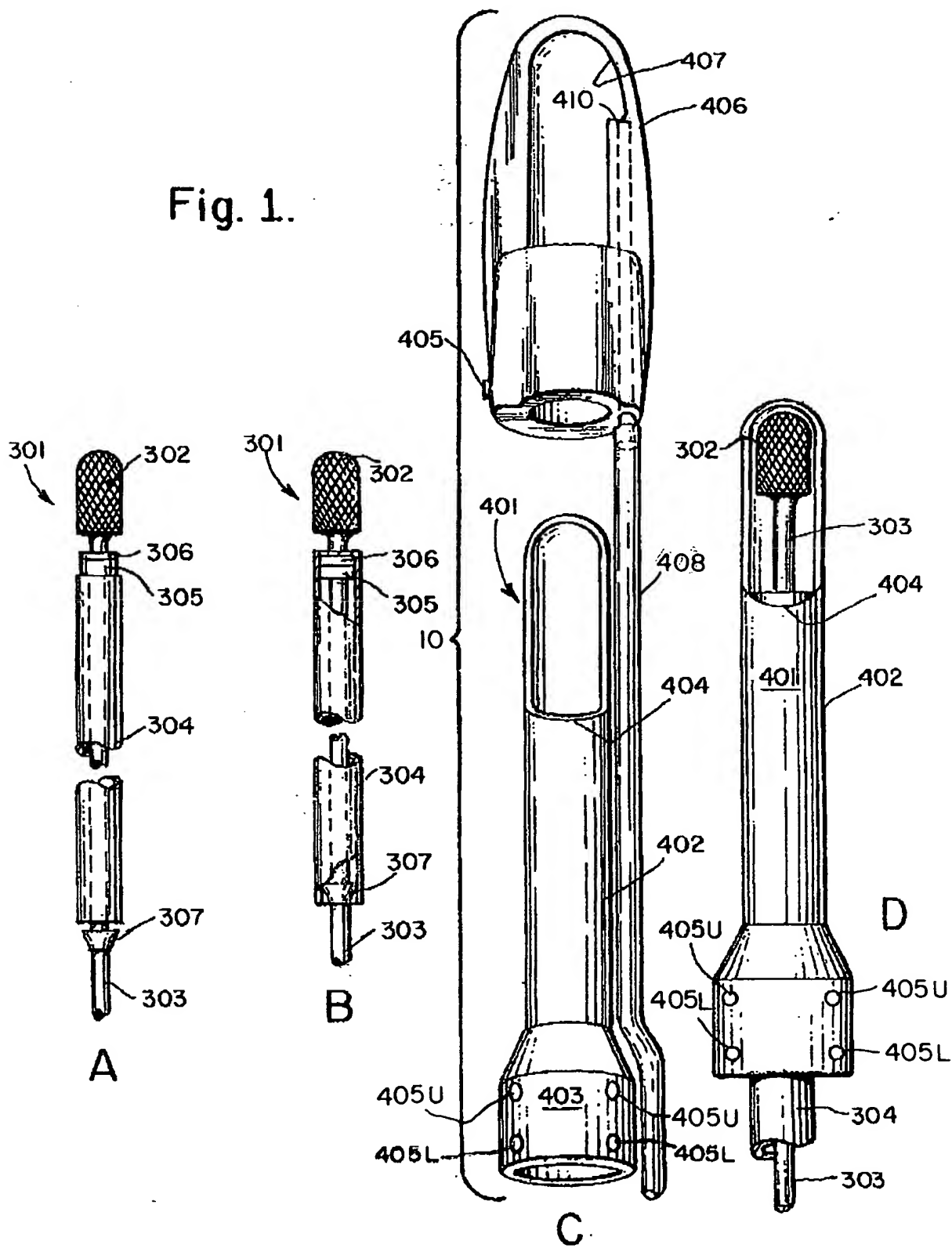
ABSTRACT

[Para 74] An arrangement that may be used in combination with selected tools having a tooth cutting surface for the care and maintenance such as removing a selected portion of the exposed surface of equine teeth. The selected tool in communication with a source of powered motion and mounted in and supported by a hand piece which is guided into the mouth of the horse. The cutting surface of the powered tool is partially guarded so as to protect fleshy portions of the horse's mouth from being engaged by the cutting surface. The hand piece provides for quick on and off attachment of a selected cutting surface for maintenance of a preselected portion of teeth within the same hand piece or another hand piece sized to ease access to the next selected portion of the horse's mouth. The selected hand piece arrangement may further incorporate a vacuum channel whereby the tooth dust and debris created by the powered cutting surface removing a portion of tooth is sucked out of the mouth of the horse. The motion of the tooth surface removal tool may be changed from rotary to powered reciprocating motion for a selected portion of the teeth or changed to be at a preselected angle. Attaching the powered drive to the rotary cutting surface by means of an adjustable clutch further enhances protection from injury to the inside of the mouth of the horse.

DRAWINGS



Fig. 1.



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Fig. 1E

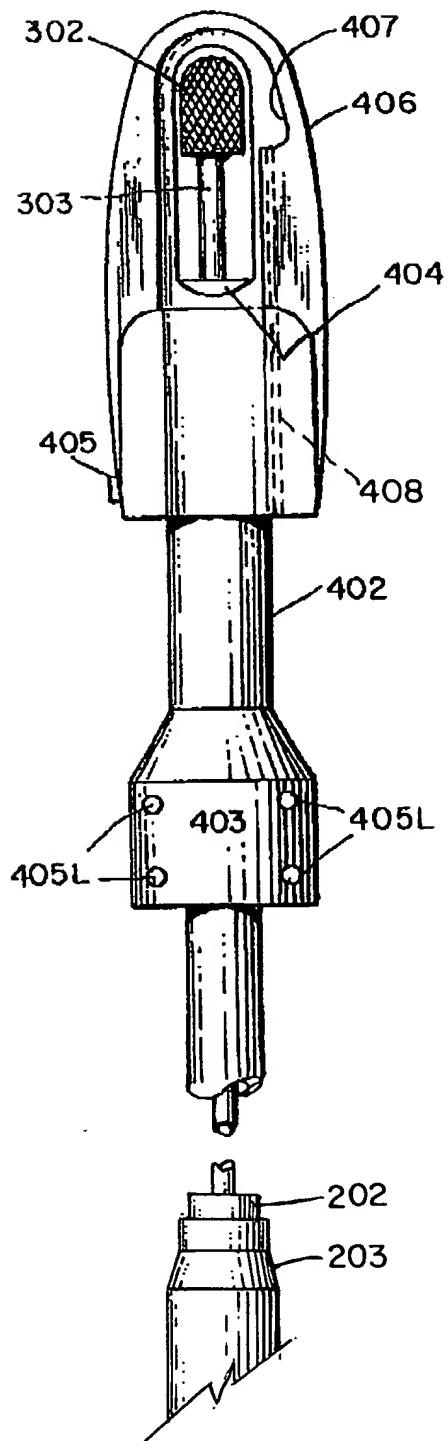


Fig. 2

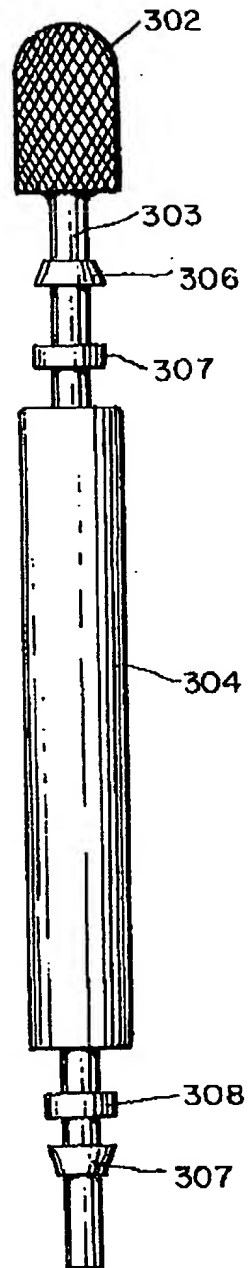
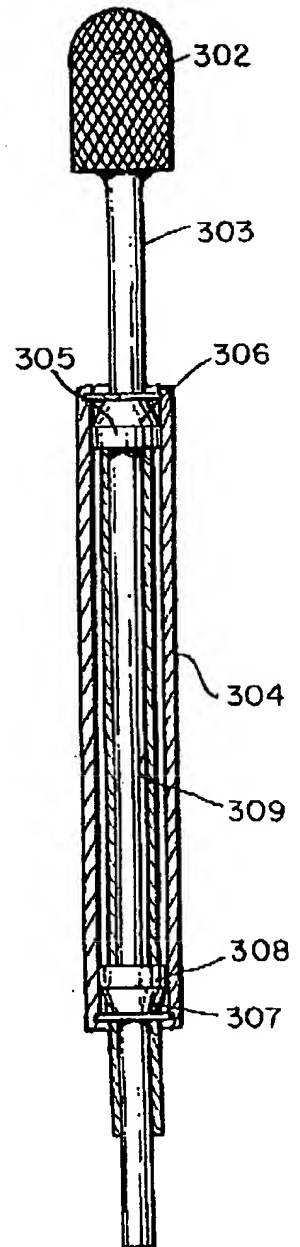


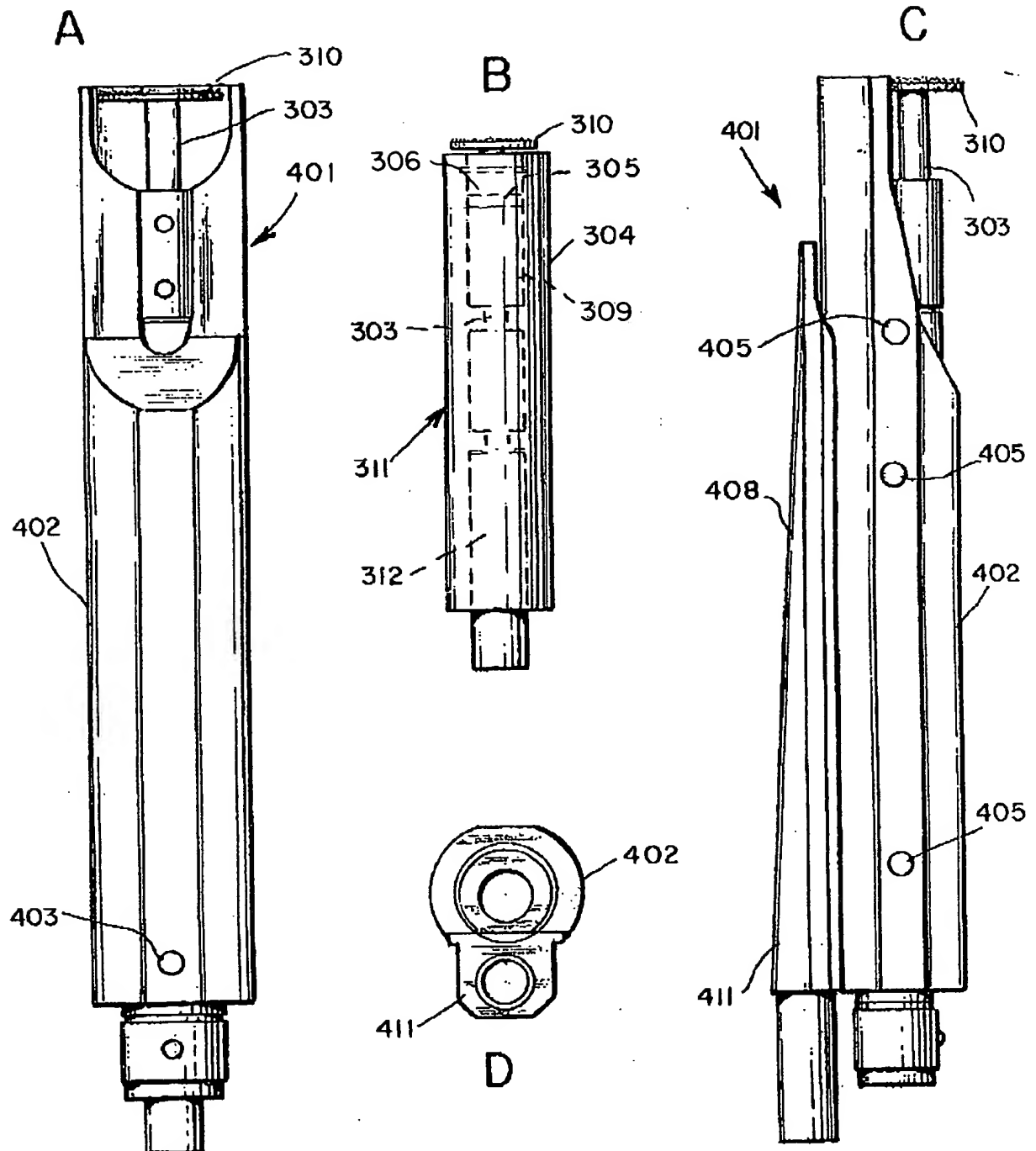
Fig. 3.



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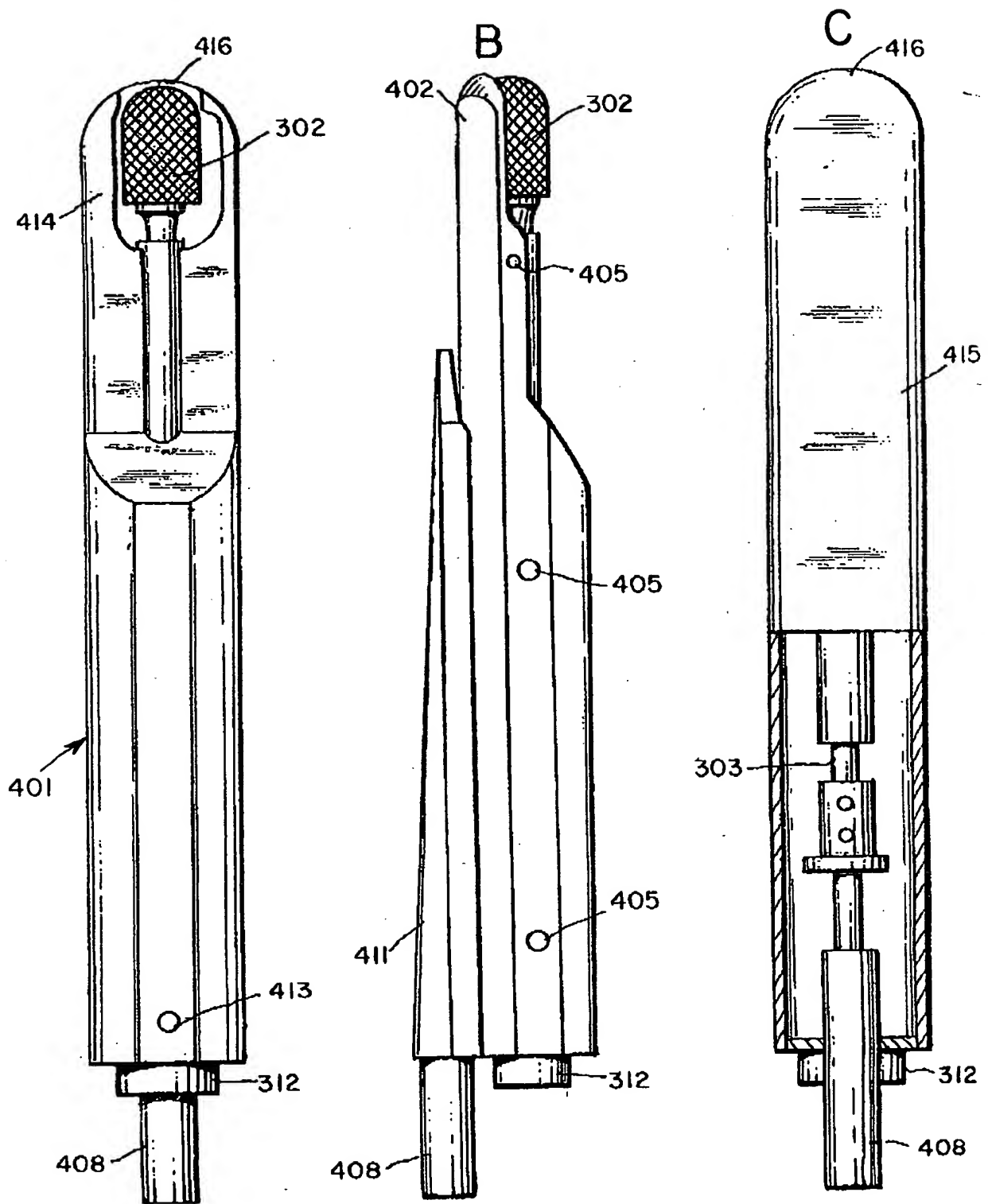
Fig. 4.



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Fig. 5.



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Fig. 10.

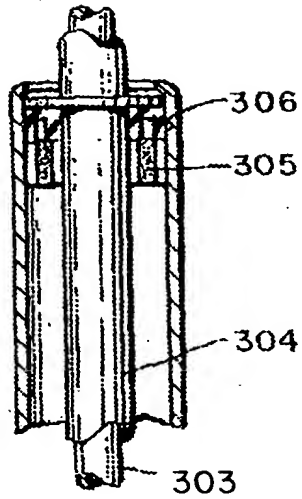


Fig. 6B.

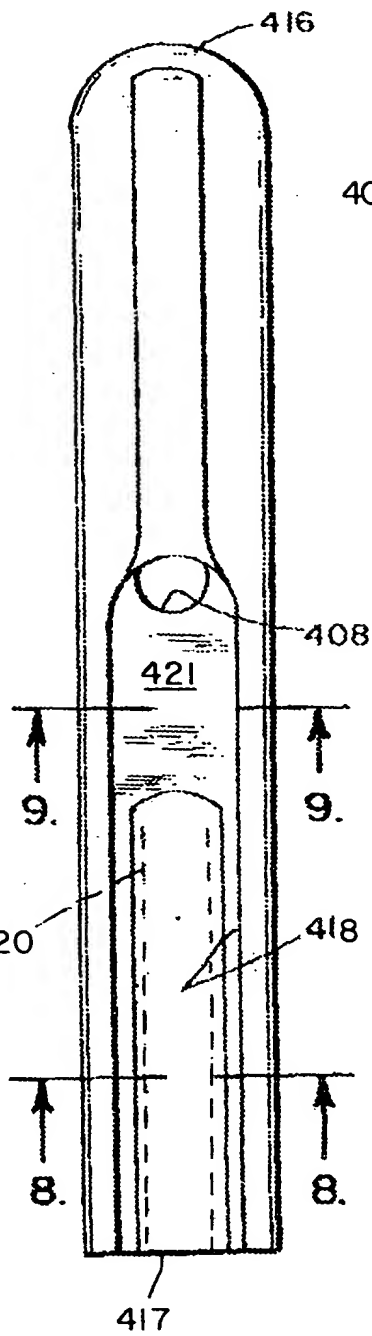


Fig. 6F.

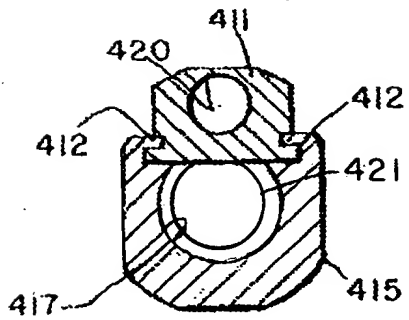
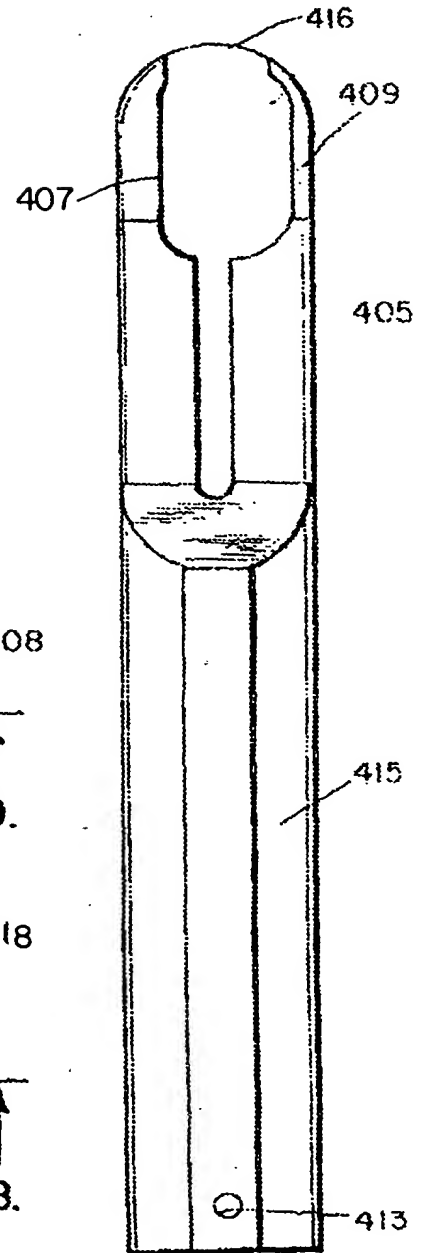


Fig. 9.

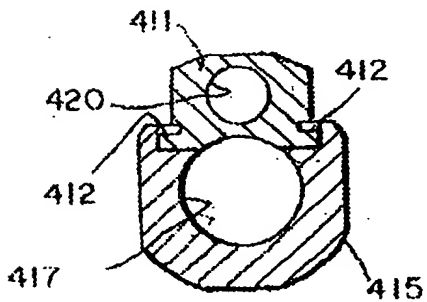


Fig. 8.

Fig. 7F.

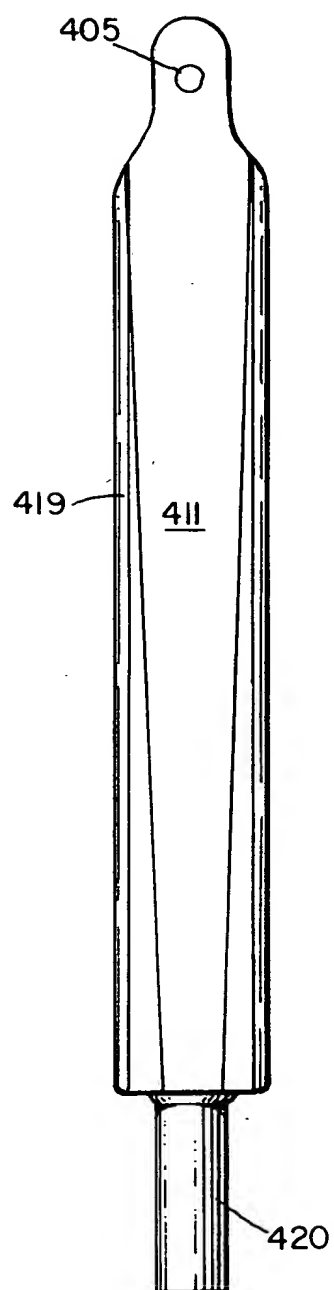
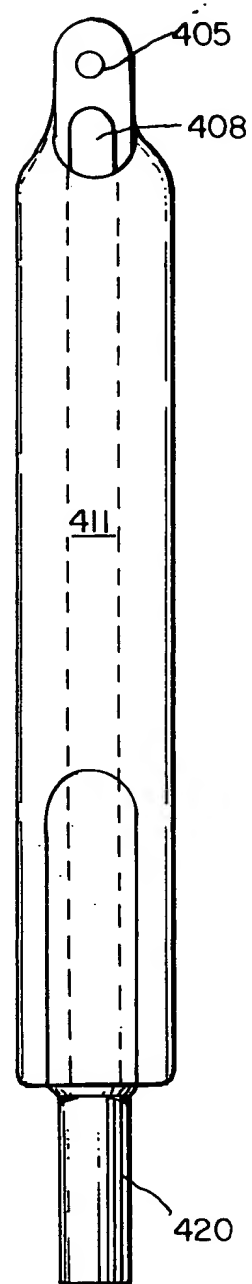


Fig. 7B.



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Fig. 11E

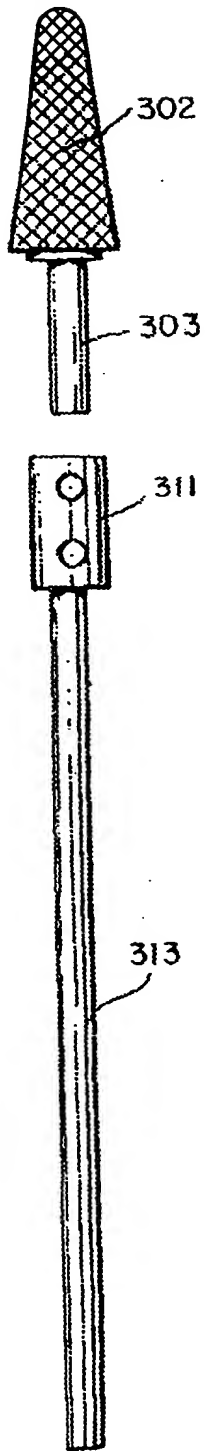


Fig. 11.

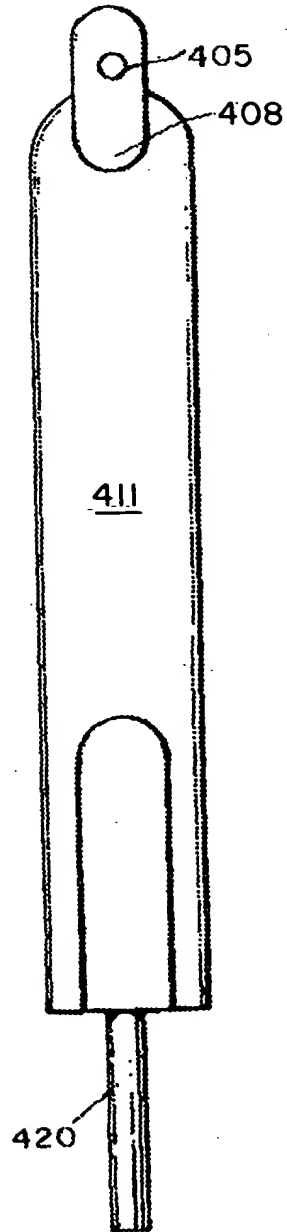
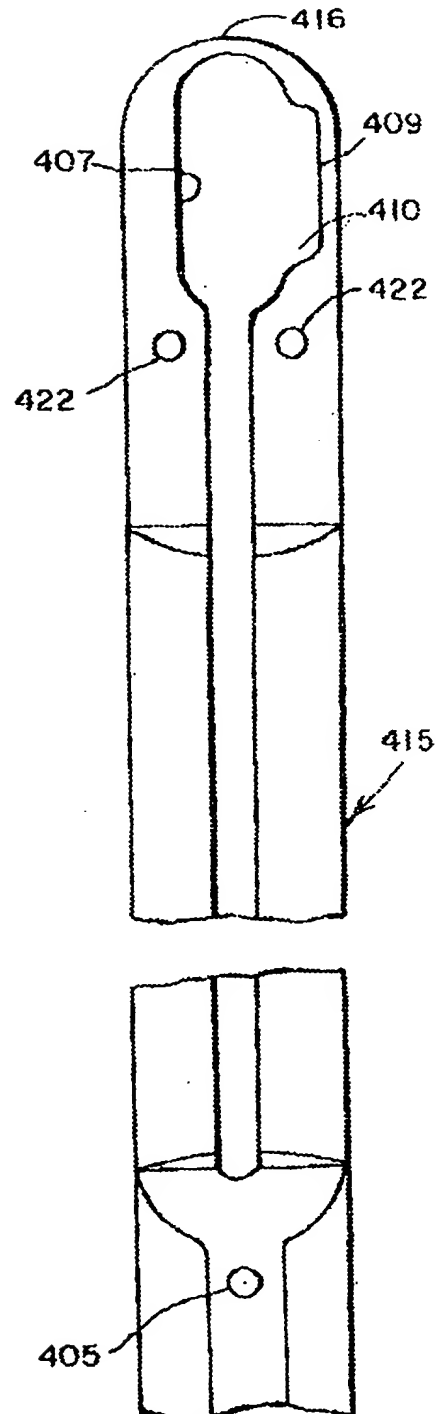


Fig. 11F.



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Fig12.

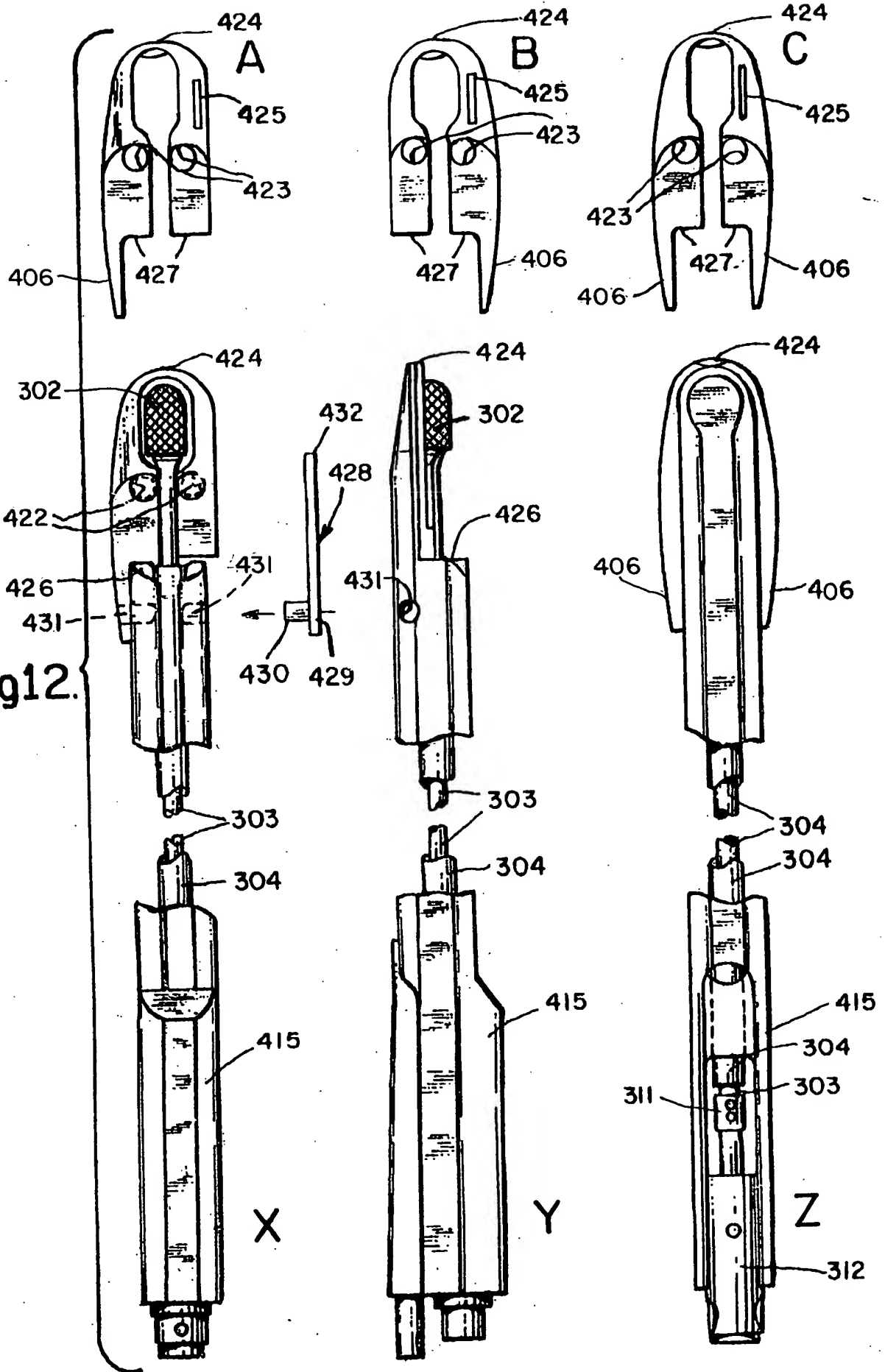


Fig. 15.

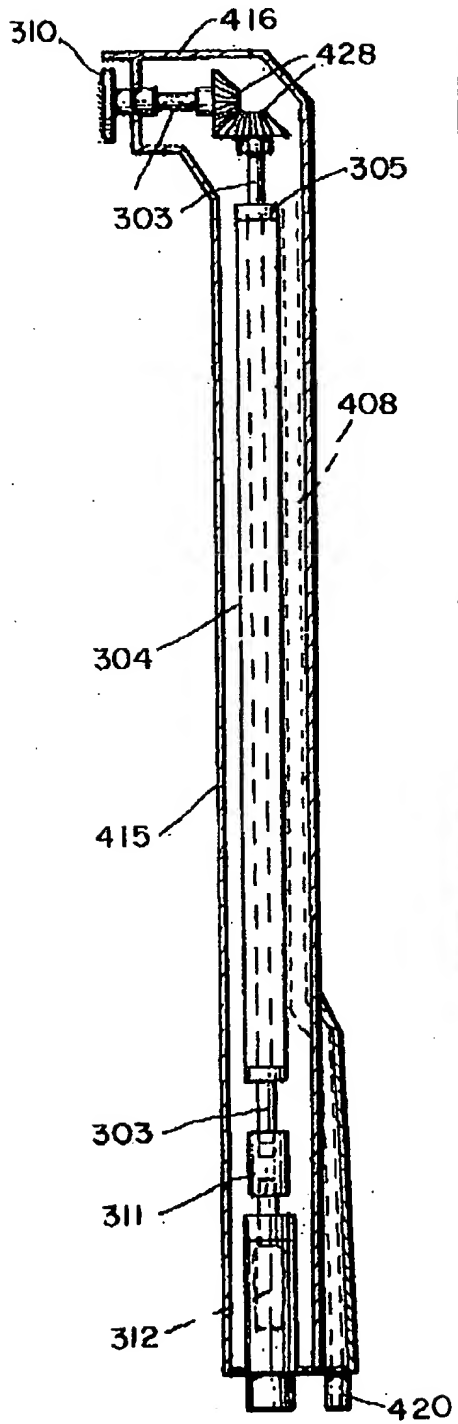


Fig. 13.

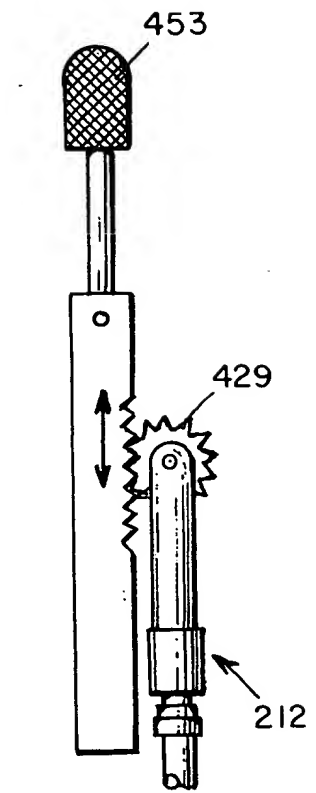
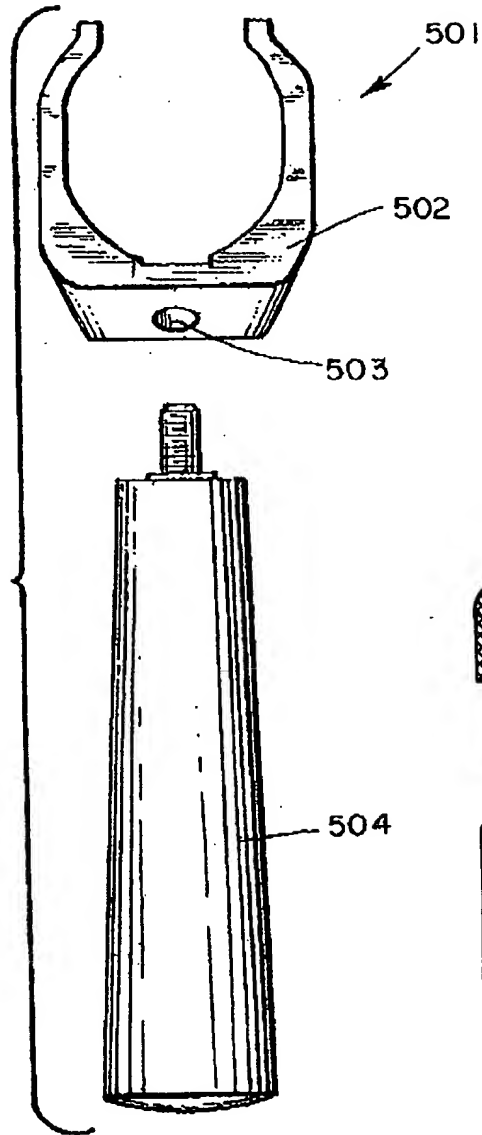
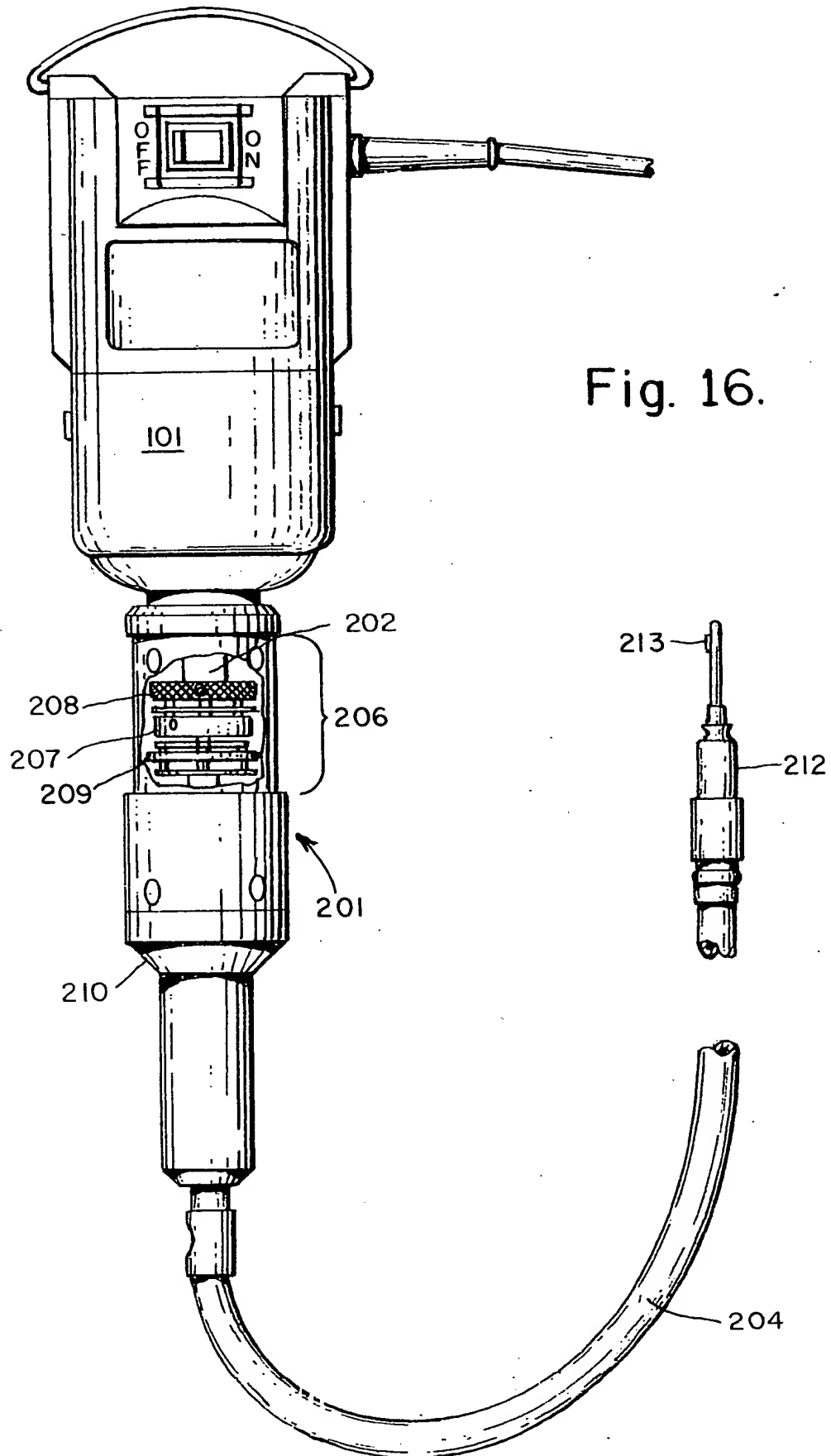


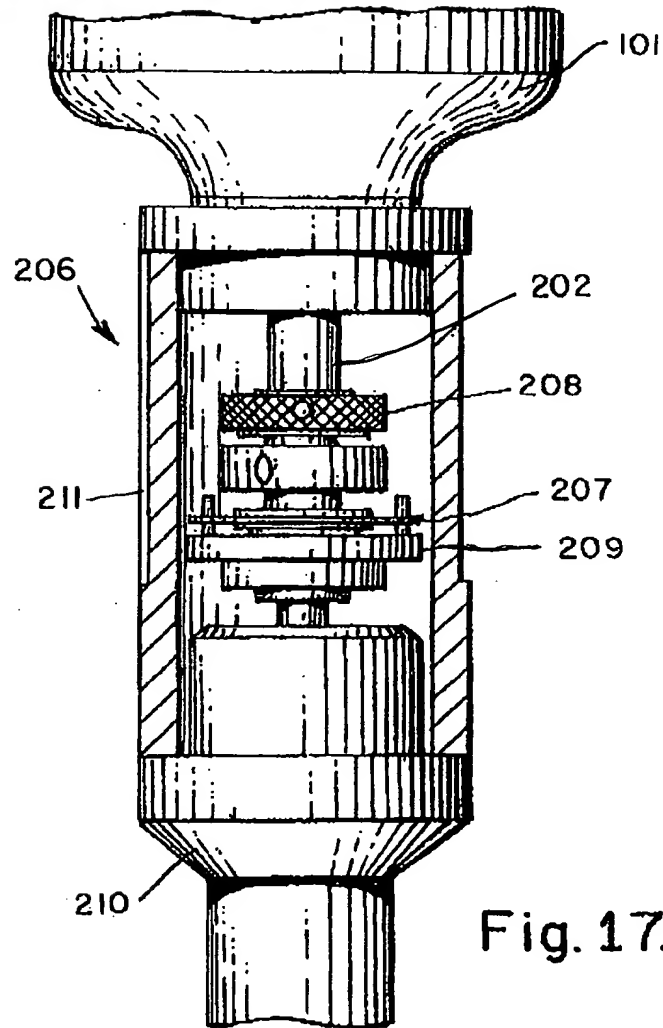
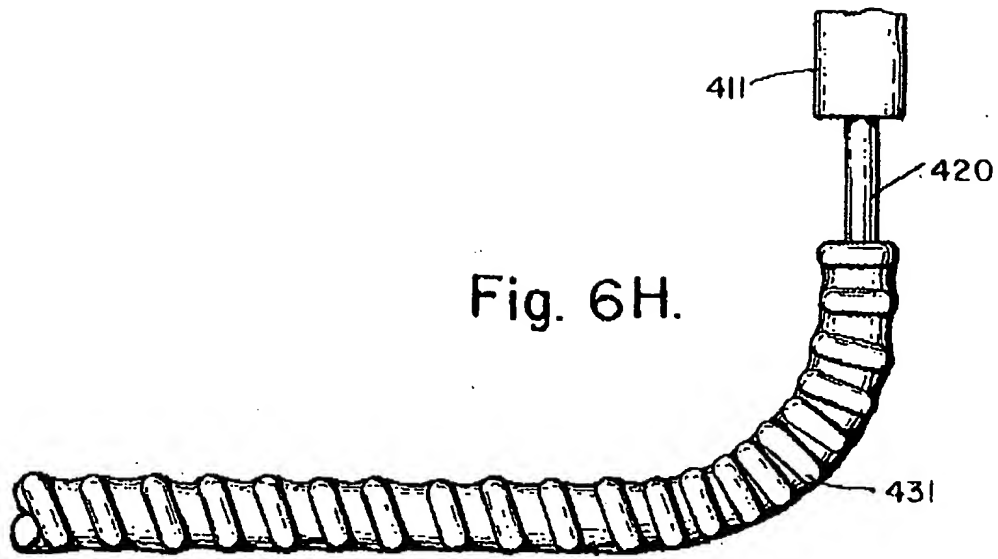
Fig. 14.

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